# re Itliming Immal,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[ The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2260.-Vol. XLVIII.

LONDON, SATURDAY, DECEMBER 14, 1878.

R. JAMES H. CROFTS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER, No 1 FINCH LANE, CORNHILL, LONDON, E.C. ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British Bogsingsstrained, Action of Foreign and Colonial), Ballways, Jasurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares. Business negociated in Stocks and Shares not having a general market

ACCOUNTS OPENED FOR THE FORTNIGHTLY SETTLEMENT. A Daily Price List, issued at 5 P.M., giving latest Quotations up to close of rket, and every Friday a general List con-taining closing prices of the week. MINES INSPECTED. BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUSTELL.

| PROTAL DRALINGS in the following, or part:—
15 Hultafail, £3.	50 Pestarena, 4s.
16 Hultafail, £3.	50 Pestarena, 4s.
17 Hultafail, £3.	50 Pestarena, 4s.
18 Hultafail, £3.	50 Pestarena, 4s.
19 Hultafail, £3.	50 Pestarena, 4s.
10 Hultafail, £3.	
10 Pestarena, 4s.	
10 Pes	

SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS)
ON DEPOSIT OF TWENTY PER CENT.

AIL WAYS—FOREIGN BONDS.—SPECIAL BUSINESS.
Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.
ESTABLISHED 1842.

R. W. H. BUMPUS, STOCK AND SHARE BROKER, MINING SHARE DEALER, 44, THREADNEEDLE STREET, LONDON, E.C. ESTABLISHED 1967.

BUSINESS transacted in STOCK EXCHANGE SECURITIES and MISCELLANEOUS SHARES of every description.
RAILWAYS, BANKS, FOREIGN and COLONIAL BONDS, RAMWAYS, TELEGRAPHS, and all the LEADING INVESTMENTS. Accounts opened for the Fortnightly Settlement.

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R. BUMPUS has SPECIAL BUSINESS in the undermentioned:

Aberdaunant, 4s. 6d.
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Colorado, 38s. 6d.
Choutales, 11s.

hicago. arn Brea, £33¼. Devon Consols, 35s.

40 East Caradon.
40 East Caradon.
40 East Caradon.
60 Exchequer, 4s. 6d.
20 Frontino, 43s. 6d.
20 Frontino, 43s. 6d.
20 Great Laxey, £18¾.
15 Grogwinion.
100 Glenroy, 12s. 6d.
70 Gold Run.
50 Hultafatt.
50 Javail, 7s. 6d.
40 Kapanga, 13s. 6d.
40 Kapanga, 13s. 6d.
40 Marke Valley, 17s. 6d.
100 Neuchatel Rock.
50 New Quebrada, \$2s.

ndermentioned:—
150 Pestarena, 3s. 6d.
40 Port Phillip, 11s.
75 Penstruthal, 4s.
15 Pateley Bridge, £2%.
60 Parys Mount., 9s.
15 Roman Grav., £6 11 3
O Richmond, £10 1ss 9d.
50 Rookappe, 5s. 9d.
£200 St. John del Rey,
50 So. Roman Gra., 4s 6d.

Devon Consols, 35s.

Don Pedro, 18s.
East Van, 48s. 6d.
Sat Van, 48s. 6d.
So Last Chance.
So Least Chance.
So Lea ECIAL BUSINESS, at close prices, in the SHARES of alithe principal HOME and FOREIGN MINES.

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These Properties of the Control of t

ESSRS. JONES AND HOUSTON, 25, CROSBY HALL CHAMBERS, LONDON, E.C. al on the most advantageous terms in RAILWAY STOCKS, BREWERY RES, and particularly in GAS and MINING SHARES, e BUYERS of:—
BHYD ALYN SHARES at ... ... ... ... ... 40 0 0 for 1000th part. by DON PEDRO at. ... ... ... ... ... 0 7 9 per share. is mine, we are happy to say, is opening out with every encouragement and pect of speedy success, the difficulties to contend against being surprisingly those of the neighbouring mines, or, in fact, of the majority of such pro-

S.

N PEDRO we can also confidentially recommend for an immediate and conable rise on account of the last most favourable telegrams. See to-day's
al,
Bankers: London and Provincial.

ILLIAM B. COBB, STOCK AND SHARE DEALER, 62, CORNHILL, LONDON, E.C. Bankers: The Alliance Bank (Limited).

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6 Great Laborators.

6 Great Laborators. 5 Great Laxey, £17%. 25 General Mining, £5. 100 Gold Run, 6s.

sheton, 18s. 6d. ne Hills, 14s. didris. dar Creek. rn Brea, £32

100 Pertarena.
100 Parys Mount., 7s. 6d.
100 Tamar Silver lead and
Fluor-spar.
70 West Frances, £5¼.
20 Wheal Peevor.
3 West Tolgus, £40.
33 Wheal Grenville.
25 Wheal Jane, 30s.
50 Wheal Uny. hada, 54.

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STOCK AND SHARE MARKETS.

Prices of STOCKS and SHARES in RAILWAYS, BANKS, ENGLISH and FOREIGN GOVERNMENT SECURITIES, GAS, MINES, INSUR-ANCE, and other Stock Exchange Securities, and various important information telegraphed instantaneous from the STOCK AND SHARE MARKETS direct

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SHAREHOLDERS and INVESTORS desirous of PURCHASING or SELLING SHARES in COPPER, TIN, LEAD, GOLD, or SILVER MINES can do so at market prices, and obtain information regarding the

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The only call required will probably non-elected is, or 10s. Present purchaser would v ry likely noon realise a large profit.

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[Established 1848.]

BANKERS: LONDON AND WESTMINSTER.

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MISCELLANEOUS.—Investors should notice the low prices reached by General Credit, Hudson Bay, National Discount, Mercantile Bank, Credit, Brighton Aquarium, and Mexican Railway.

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change Mining Market, many Mining Shares are omquire any information it will be immediately rendered.

FOR 8ALE, or PURCHASE:
60 Rookhope, 7s. 6d.
100 Farys Mountain, 8s.
100 Rossa Grande, 1s. 6d.
20 Pateley Bridge, £2%.
20 Canon, £2.
25 Eberhardt, £3 12s. 6d.
26 Eberhardt, £3 12s. 6d.
Caledonian.

Caledonian. 30 Colorado, 40s. 50 West India Panama Telegraph, £2 2s 6d 50 Globe Telegraph Ordi-nary, £5 1s. 6d.

Also in Railways— Brighton A.

Also in Railways— Caledonian. (
Brighton A. Great Eastern. At market prices on arranged terms.

East Van. East van. East Van. Grreat Laxey. Frongoch. Van.

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Chatham and Dover, Dover A.

M R. CHARLES THOMAS, 3, GREAT ST. HELEN'S, LONDON, E.C.

M R. ALFRED THOMAS, MINING AGENT, AND STOCK AND SHARE DEALER. 10, COLEMAN STREET, LONDON, E.C.

"INVESTMENTS AND SPECULATIONS" for 1878, Price Sixpence.

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Investigations, Reports, and Valuations made of Coal, Iron, Slate, Pyrites, and other properties at home and abroad. Enquiries for Road and Railway Materials, Mining Plant, Pipes, Castings, &c. Plans, &c., of the most modern and economical mining appliances, fittings, and arrangements.

I have been long acquainted with the principal Coal and Ironworks in the North, with the Blate Quarries in North Wales, and for many years was Chief Engineer of the Tharsis Mines, Works, and Railway in Spain.

TR. JOHN L. M. FRASER (Fourteen years at the Great Minera Mines), CONSULTING MINING ENGINEER AND FINANCIAL AGENT, OFFICE,-59, HOPE STREET, WREXHAM.

Has SPECIAL BUSINESS in MINERA, PLAS-DDU, BRITISH SILVER-LEAD, and PANT-Y-MWYN SHARES, and, from personal inspection, can strongly recommend them for investment, and a rise. Should be CONSULTED before INVESTING, as he visits the leading Mining Districts, and can furnish the most RELIABLE INFORMATION from Personal Inspections, which may save thousands of pounds.

M R. TIMOTHY HUGHES,
MINING AGENT AND SHAREDEALER,
59, SEEL STREET, LIVERPOOL.

The recent discoveries at the Prince Patrick Mine (see reports in Mining Journal
of Oct, 12 and Nov. 2) clearly indicate that the mine will soon again be paying
dividends. Intending investors should apply for shares before they advance to ormer prices.

Particulars can be obtained on application, as above.

B O D I D R I S MINING COMPANY
(LIMITED).

The Directors have discovered that a Member of the Stock Exchange (against the rules of the House) has been ADVERTISING, under other names, the SHARES in this company. This has had an unfavourable effect among many, and the Directors are auxious to let the Shareholders know how it has been brought about.

10 Colomanustreet, London, E.C., Dec. 15th, 1878. and the Directors are anxious to let the Shareholders brought about. 10, Coleman-street, London, E.C., Dec. 13th, 1878.

WEST PEEVOR MINE.—The undersigned has a FEW SHARES TO DISPOSE OF in this highly promising Mines which immediately adjoins Wheal Peevor. Has the same rich lodes, and is under the same management. This is considered the best speculation in Cornwall. JOHN RISLEY, 38, CORNHILL, LONDON, E.C.

POR SALE, the WHOLE or PART:—
40 Wh. Agar, £4½. 100 Santa Barbara, £1 15s 100 Tyn-y-Fron, £1 p., 30s
50 Hultafall, £2½. 60 Pant-y-Mwyn, £3 3s. 200 ditto , 5s. p., 10s
40 East Van, £2 2s. 6d. 18 Hornachos (off. wd.)
WANTED TO BUY-50 to 100 Glyn, at a fair price; 10 to 20 Monydd Gorddu.
Address, H. Wilkins, \$2, Heybourne Villas, Tottenham.

THE CAPE COPPER MINING COMPANY
(LIMITED).

Notice is hereby given, that at a Meeting of the Directors of this company, held to-day, it was resolved:—
"That a DIVIDEND of SEVENTEEN SHILLINGS AND SIXPENCE PER SHARE, free of income tax, be and is hereby DECLARED, PAYABLE on the 24th day of December instant, to the shareholders on the books of the company on the 18th instant; and that the Transfer Books be closed during the said 18th instant."

By order of the Board.
J. C. LEAVER, Secretary.

6, Queen-street-place, London, 11th December, 1878.

Notice is hereby given, that the HALF-YEARLY ORDINARY GENERAL MEETING of this Company will be HELD at the City Terminus Hotel, Cannonstreet, London, on WEDNESDAY, the 18th day of December next, at Two o'clock received. precisely.
To receive and adopt the Directors' Half-yearly Report, and to declare a Dividend.
JOHN HOCKIN, Managing Director.
8, Tokenhouse-yard, E.C., 2nd December, 1878.

THE RAVENSCLIFF MINING COMPANY
Notice is hereby given, that the ORDINARY GENERAL MEETING of the
Shareholders of the Raveoscilff Mining Company (Limited) will be HELD at the
Guildhall Tavern, Gresham street, London, on TUESDAY, the 17th of December,
1878, at Two o'clock in the afternoon precisely.

By order of the Directors,
C. GRAINGER, Secretary.

50, Old Broad-street, London, E.C., 7th December, 1878.

THE ADVERTISER (32), for Twelve Years in Chile, in the principal Mining, Smelting, and other Establishments. Assays Copper Ores, good Accountant, Spanish and French, DESIRES EMPLOYMENT. Spanish trade preferred. Excellent references.

Address, "A. C. L." Messas. Dawson and Sons, 121, Cannon-street, E.C.

WANTED, by the CHONTALES CONSOLIDATED MINING COMPANY (LIMITED), a PORTABLE STEAM ENGINE, of not less than 20-horse power, either new or second hand. Must have a large frebox for the consumption of wood fuel, and be sound in every part. State lowest terms and maker, with full particulars, to the secretary.

J. JAMESON TRURAN.

WANTED, a COMPETENT UNDERGROUND ASSISTANT for a MINING UNDERTAKING in JAPAN. Three years engagement; second-class passage out and home. Balary, One Hundred Trade [Dollars per Manual Property of the control of the con

PUPIL WANTED, in a MINING ENGINEER'S OFFICE, in a rich and extensive Mining District in the NORTH OF ENGLAND, where he will have every opportunity of making himself practically acquainted with the skilful and economical management of Metalliferous Mines in every detail. Applications, by letter only, with references as to respectability, &c., to be addressed to "Engineer," 29, Ashfield-terrace West, Newcastle-on-Tyne. Premium required.

MINING AGENT OPEN TO A RE-ENGAGEMENT.

Has had considerable experience in METALLIC MINING in CORN-WALL and the NORTH OF ENGLAND; also 15 years on the Continent. Speaks Brglish, French, German, and Spanish, and has had charge of mines for many years. Practically acquainted with the most modern dressing apparatus, the most esconsisal pumping and winding englises, boring machines, smelting, and general steam and water appliances. Inspections undertaken; plans of mines and assays earefully executed. Unexceptionable references.

Address, Mr. Nancz, 23, Stanly-street West, North Shields, Northumberland.

# Bectures on Bractical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.\* - No. XCIX.

BY J. CLAPK JEFFERSON, A.R.S.M., WH. SC., Mining Engineer, Wakefield.

(Formerly Student at the Royal Bergakademie, Clausthal). [The Author reserves the right of reproduction.]

The publication of these Lectures is unavoidably suspended or three weeks. They will then be resumed and continued regularly.

Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr Vow GRODDECK, Director of the Royal Bergakademie, Clausthal, The Harz, Borth Germaux.

#### GEOLOGICAL SOCIETY OF LONDON.

Dec 4.-HENRY CLIFTON SORBY, F.R.S. (President), in the chair.

Dec. 4.—Henry Clipton Sorby, F.R.S. (President), in the chair.

Rev. W. H. Allen, F.R.A.S. Kentish Town-road; George Grey Butler, Civil Service Commission, Westminster; John Dixon, Assoc. Inst. C.E., the Choubra, Surbiton; Rev. Wm. Downes, B.A., Kentisbeare, Collumpton, Devenshire; Jos. Drew, M.D., Foxgrove-road, Beckenham; A. Tom Metcalfe, East Retford, Nottinghamshire; E. P. Monckton, M.A., Fineshade Abbey, Northamptonshire; Albert J. Mott, Adsett Court, Westbury-on-Severn; Philip Lutley Sclater, Ph.D., F.R.S., Hanover-square; William Hobbs Shrubsole, Sheerness; and Alex. Thuey, Stevenage, Herts, of the Public Works Department, Calcutta, were elected Fellows of the Society.—Charles Barrington Brown, Assoc. R.S.M., Lansdowne-road, Notting Hill; Carl Fischer, M.D., F.L.S., Sydney; and William Coles Paget Medlycot, Ven, Sherborne, Dorsetshire, were proposed as Fellows; and Dr. F. V. Hayden, Washington; and M. Jules Marcou. Salins, as Foreign Members of the Society.—Rev. Fred. Charles Lambert, B.A., Arundel House, West Hill, Sydenham; Robt. Plant, Cheadle Park, Cheadle, Staffordshire; and Ernest Swain, Campden Hill-road, will be balloted for as Fellows of the Society.

shire; and Ernest Swain, Campden Hill-road, will be balloted for as Fellows of the Society.

The following communications were read:—
1.—'On some Mica-traps from the Kendal and Sedbergh Districts," by Prof. T. G. Bonney, M.A., F.R.S., F.G.S., and F.T.S. Houghton, B.A.
2.—"Pleistocene Notes on the Cornish Coast near Padstow," by Prof. W. A. E. Ussher, F.G.S.

[F.G.S.]

The Pleistocene History of Cornwall" by W. A. E. Ussher.

Prof. W. A. E. Ussher, F.G.S.

3.—"The Pleistocene History of Cornwall," by W. A. E. Ussher,
The next meeting of the society will be held on Dec. 18. when the
following papers will be read:—1. "On remains of Mastodon and
other Vertebrata of the Miocene Beds of the Maltese Islands." by Prof.
A. Leith Adams, M.D., F.R.S., F.G.S.—2. Dinosauria of the Cambridge Greensand" (parts 1-6), by Prof. H. G. Seeley, F.L.S., F.G.S.

#### SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE INSTITUTE OF MINING ENGINEERS.

INSTITUTE OF MINING ENGINEERS.

The quarterly meeting of members was held on Thursday at the Midland Institute, Birmingham,—Mr. Henry Johnson (vice-president) in the chair. There were also present, among others, Messrs. Jno. Field, Parton, D. Peacock, Hayward, Addenbrooke, Fellows, Rogers, G. Jones, G. Taylor, Tomson, Whitehouse, Davis, Broughall, &c.—The formal business being done, Mr. Field proposed a vote of condolence with the family of Mr. Barker, a member of the institute, who was killed in the lamentable accident at Sandwell.—The The vice-president said he deeply regretted to say that Mr. Garside, a partner of the other gentleman killed by the same accident, had died it was thought from shock to the system caused by seeing Mr. Arnold fall.—Messrs. D. Peacock and W. North were appointed scrutineers at the coming election for officers. Messrs, Hayward and D. Rogers were appointed auditors.—Mr. Robinson (Walsall) introduced and explained a set of colliery report books designed to provide a continuous and undisturbed report at each pit, and also complete reports at the office of the colliery. He said his books were in counterfoid so that every day the manager could have a report, and when the Government Inspector called there was no need to waste time in running from pit to office or from both to the manager. The competent person filled up both, and so the books were kept clean, and, according to the words of the Act of Parliament, "signed by the competent person." Mr. Davis called attention to the new Weights and Measures Act, and said that, whilst the 19th section of the Act seemed to provide that every load of coal should be exactly weighed either below ground or on the bank, yet the 22nd section seemed to provide that the seller should not be liable to a fine if the articles were sold in vessels having no imperial qualification or size. The two sections seemed to show that if the 22nd 22nd section seemed to provide that the seller should not be liable to a fine if the articles were sold in vessels having no imperial qualification or size. The two sections seemed to show that if the 22nd applied to coal the old system of gauging could be continued without fear of prosecution. A disscussion followed this, but the general feeling was that no good could\*come from the Institute resolutions until it was known how the Coalmasters' Association intended to deal with the matter. The discussion was adjourned for a fortnight.—Mr. David Peacock called the attention of the meeting to the lamentable accident at Sandwell, and said the sympathy of the institute should be with Mr. Johnson, who, with his son, had done everything to make Sandwell the foremost pit in the country. That such an accident should happen at Sandwell was inexplicable, and Mr. Johnson deserves that encouragement from his friends. Mr. Johnson, jun., ought also to be complimented on the risk he ran in Mr. Johnson deserves that encouragement from his friends. Mr. Johnson, jun., ought also to be complimented on the risk he ran in venturing his life to save another.—Mr. Alex. Smith (M.I.C.E.), secretary, bore out the remarks made as to the perfectness of the plant at Sandwell, and bore testimony to the care exercised by Mr. Johnson and his son.—The vote of sympathy was then carried unanimously, and Mr. Johnson feelingly returned thanks.—A discussion on "Explosions from Dust" was adjourned, in consequence of Mr. Williams's experiments being in course of investigation.

Society of Engineers.—At the twenty-fourth annual general meeting of members on Monday (Mr. Robert P. Spice, President, in the chair), the following gentleman were balloted for and duly elected as the council and officers of the society for the year 1879:

—As President (for the second time), Mr. R. P. Spice; as Vice Presidents, Mr. J. Bernays, Mr. C. Horsley, Mr. T. Porter; as other members of the council, Mr. C. Barnard, Mr. J. Church, Mr. S. Cutler, Mr. F. E. Duckham, Mr. F. W. Hartley, Mr. A. Rigg, M. J. Walker, and Mr. W. Schönheyder; as honorary secretary and treasurer, Mr. Alfred Williams; and as auditor, Mr. W. H. Bennett. It was announced by the President that the following premiums have been awarded by the council for papers read during the year—to Mr. Henry S. Copland, for his paper on Modern Roadway Construction, and to Mr. George G. André, for his paper on the Application of Electricity to the Ignition of Blasting Charges. Votes of thanks were unanimously accorded to the President and council for 1878; to the honorary secretary and treasurer, Mr. Alfred Williams; to to the honorary secretary and treasurer, Mr. Alfred Williams; to the acting secretary, Mr. Perry F. Nursey; and to Mr. T. H. Martin and Mr. H. Conradi, for acting as Scrutineers of the balloting lists.

THE PROPOSED NATIONAL MINERS' RELIEF SOCIETY.-A meeting of the provisional committee which was appointed at the conference in Manchester on the 20th, ult. for the formation of a Miners' National Relief Society was held yesterday at the old Town Hall, the High Sheriff of Lancashire presiding, when it was decided that it was desirable to form a permanent national committee, having for its objects (1) the formation in every mining district of a Mineral Permanent Belief Fund on the voluntary assurance principle; (2) the consolidation and economising of national help for miners by the consolidation and economising of national help for miners by forming a general fund, open to public subscriptions and bequests; (3) to equive into, and if possible stillse, the large surplus funds lying in different parts of the country; (4) to promote the economical distribution of existing relief funds subscribed by the public; and (6) to administer any funds that may be specially placed in the hands of the national committee with the object of establishing orphanages. For the purpose of carrying out these objects it was decided that a representative meeting of the authorities of existing miners' permanent relief societies, and others interested in the formation of a national committee should be appointed; and Mr. M. W. Peace (secretary of the Mining Association of Great Britain) was instructed to draw up a suitable trust deed,—Manchester Examiner,

# Original Correspondence.

THE DISCOVERY OF GOLD IN INDIA.

THE DISCOVERY OF GOLD IN INDIA.

Reference was made in last week's Mining Journal to the highly successful explorations of Mr. R. Brough Smyth in the auriferous district of South Wynaad, where he had already discovered, in an area of 25 miles by 13, no less than 90 outcrops of ore reefs, with a thickness of 2ft, to 4 ft, yielding from a few pennyweights to 200 ozs. per ton. From the samples of the auriferous quartz which have been received by Messrs. Smith, Fleming, and Co., it is evident that the veins are very similar to some of those which have been most successfully wrought in Victoria, Australia; indeed, the resemblance to some of the Bendigo reefs is striking—abundance of visible gold, and the quartz stained with iron just in the same way. Other specimens show the gold in nicely decomposed matrix, and still others consist of rich auriferovs gravels, so that, considering the large area over which the deposits are now proved to exist, there

wisible gold, and the quartz stained with iron just in the same way. Other specimens show the gold in nicely decomposed matrix, and still others consist of rich auriferovs gravels, so that, considering the large area over which the deposits are now proved to exist, there can be no question that there is a good field for British enterprise, more especially as labour is extremely cheap and abundant, and there are the utmost possible facilities for working. Some few months since the dict ict was inspected for the Bombay branch of Messrs. Smith, Fleming, and Co., by Mr. Oliver Pegler, A.R.S.M., and although he appears to have made but a superficial survey at the time when he made the report, from which the subjoined are extracts, he has recorded enough to show beyond doubt that the district is capable of yielding enormous wealth. It appears that for the last two or three years Messrs. Smith, Fleming, and Co., have been actively engaged in connection with the matter—the delay having arisen principally from the fact of the district having hitherto been regarded almost exclusively as a coffee-producing district, which necessitated tedious negociations for securing planters rights. In this they have been fairly successful, so that there is at present every facility for extensive and profitable operations.

It should be distinctly understood that Mr. Pegler's present report is essentially crude and preliminary. His earlier work, he writes, was carried on under difficulties; many obstacles were placed in his way, and as far as the Alpha Mine was concerned he was kept from inspecting it, and it was only by resorting to a ruse that he visited the reef at all. Even then he was not shown the working where the gold existed in such astonishing richness, the excuse being that the place was under water. It was only upon his leaving that he heard the gold really did exist, and of course, on his later visit, he inspected the working. His report does not, therefore, strictly accord with what he would write with his present knowledg phic rocks. These orders are prevalent throughout the Wynaad district, although here and there the granite and syenite certainly do occur, but they now seem to have given place to the gneissic and laminated rocks.

laminated rocks.

I will enumerate the several peculiar formations which constitute the superficial crust of the country, and I may state that even now our knowledge is very imperfect relating to this question. Our experience is necessarily of a very superficial character. The extent of ground is very vast, and we are without profound mining operations to lead us to form an opinion of the deeperstructure of the crust of the country. We have gneiss of light grey and pinkish shades often changing to granite, dense, hard, or coarse, easily disintegrated, and forming soft rock. Greenstone, chlorite, and diorite of hard fissile texture, with the planes of separation vertical. Talcose schists not thick, but in character very light, soapy, and talcose. Slaty decomposed agilaceous rocks, often stained deeply with ferruginous matter. It is difficult to say what this formation is, unless it is produced by ulterior decomposition and disintegration of the gneiss or granitic rocks.

Granite of the dark hornblendic class.—I am also inclined to think fleshy varieties exist tending to gneiss, the surface being dis-

gneiss or granitic rocks.

Granite of the dark hornblendic class.—I am also inclined to think fleshy varieties exist tending to gneiss, the surface being disintegrated and soft. Syenite undoubtedly is present. As previously mentioned, the granite and syenite do not show at the surface to any great extent, although it is possible that upon cutting through the more yielding and softer surface formations the harder crystalline rocks would be met with more generally. The whole surface of the ground is contorted, upheaved, and thrown about, forming abrupt ridges, valleys, peaks, rounded hills, and depressed surfaces; so that, combined with the altered metamorphic condition of the rocks, I consider it a most difficult problem to determine the true strike of the strata generally. Regarding the mineral question at issue, I may state that the whole of the country is ramified with a run of bold quartz veins, which are true reefs. The general run of these reefs is parallel, the direction of strike being almost invariably north and south, a few degrees west of north and east of south. The dip of the reefs is very low as seen at surface, and almost invariably to the east, varying when outcropping on the brows of the hills, especially when heavily developed, from almost horizontality to from 20° to 30°, and increasing in dip in lower grounds. These reefs, which are met with in every part of the country, are often of great breadth, up to 15, 20, and 30 ft. of thickness, and are composed of white crystalline compact quartz, identical in every respect with the reef quartz of Russia, Australia, California, Nevada, or any other known gold bearing country.

The quartz or veinstone, of course, is of varied character, changing from the compact sub-crystalline milk-white stone, to flesh colour, red, and brown, to a coarse nature highly ferruginous, charged with seequioxide of iron, pyrites, pyrolusite, the vein soft, disintegrated, and laminated in structure, changing in some instances into a decomposed granitie nature, and thence fo

rock into talcose or micaceous schistic rock. The Bear reef is of this class. Almost invariably the large outcrops, which are very dense, compact, and hard, also the hanging or upper part of the dense, compact, and hard, also the hanging or upper part of the lodes, are of this white quartz, but as the depth is increased the under or footwall changes into the ferruginous stone, or emerging into the schistose or decomposed rock beneath, deeply stained red with iron. Of course the several lodes vary much, some having the hard, dense, bold aspect, especially when striking across a hill summit, as in the Monarch reef; others show more the soft, porous, stained appearance, especially when outcropping under the brow of an escarpment; but I think that even in the boldest and most dense lode at a little depth the footwall will show this stained and less compact aspect. At a greater depth the stained appearance would again cease. would again ces

The Bear reef is an instance of the more ferruginous class of reefs. From the footwalls of these lodes leaders or small veins seem tatrike to the west from the main reef, but I am inclined to think in many instances these supposed leaders are small flat parallel lodes which have been formed in the interstices of the laminated bed-rock, or in other instances portions of the main lode where, from the soft, slaty, laminated nature of the country rock in the earlier formation of the reef, it has broken up into numerous bands.

The enclosed granitic disintegrated materials, as in footwall of Bes reefs, are evidently portions of enclosed rock or horses which have become disintegrated and changed. The Monarch reef is traced for nine miles. An outcrop of true chlorite or greenstone runs very

near it.

The description of the two reefs may be taken as typical of all the various quartz veins or true lodes which occur here. It must, of course, be understood that all the possible variations between the two extremes above referred to will be met with. In the same the two extremes above referred to will be met with. In the same reef in the course of its strike across the country will be found all the features of variation, from the hardest and dense to outgrop to the soft decomposed vein in the different points of its run. In the Monarch reef this is forcibly apparent at some little distance from the hilltop overlooking Devalah. In the lower ground the lode becomes soft and broken up.

Certain peculiarities in the physical aspect of these reefs may be briefly alluded to. Their dip is to the east, and at the higher peaks where outcrops appear the lie or dip is very low—only some 109—and sometimes the reefs seem to form the tack or slope of a hill-side. The dip is nearly always to the east. On entering lower

—and sometimes the reefs seem to form the back or slope of a hilside. The dip is nearly always to the east. On entering lower ground they are found to increase in dip, and average from 15° to 30°—generally 20° to 30°. Almost invariably where the reef runs parallel to the run of the hill an abrupt and steep fall will be found to occur to the west of the strike, thus forming a bold escarpment, while on the eastern side the slope of the hill is very gradual. The reason of this is quite evident. The hard overlie and top of the reef forming a back and protection to the eastern slope enables it to resist the action of denudation; not so the western. The underlie here, the soft footwall, and the soft schistose casings beneath easily disintegrate and crumble away; thus landslips are formed, resulting in an escarpment, and the gradual wearing away of the reef from west to east. reef from west to east.

resulting in an escarpment, and the gradual wearing away of the reef from west to east.

From these slight descriptions of the quartz reefs of the country it will at once be clear that the dense, compact, heavy lodes have resisted denudation, and thus the high ridges and hill tops are formed. The softer, porous, foliated, and laminated portions of the run of the reef have been eroded away. It is a strange fact, which bears out the above, that many of the highest and boldest reefs which form the caps and ridges of the highest hills have no signs of having been touched by the native miners, who avoided, apparently, working on such dense, compact, adamantine stone, and preferred the softer, more yielding veinstone on lower elevations.

From the above it does not follow that the solid compact development may not exist in the flatter land, or that the softer lode may not occur on a hill. Lodes are apt to change in depth in every possible way; a dense heavy lode may suddenly give way to the yielding one, and a soft, split up, or small and poorly developed reef may at a few fathoms depth suddenly or gradually change into a very thick, heavy, compact lode.

sible way; a dense heavy lode may suddenly give way to the yielding one, and a soft, split up, or small and poorly developed reef may at a few fathoms depth suddenly or gradually change into a very thick, heavy, compact lode.

Mr. King, who wrote a report in 1877, estimates that 2000 ft. of superincumbent gneissic formations have been removed, but his several deductions thereto are scarcely tenable. In the metallic constituents common to the reefs pyrites is present in large amount, and iron and copper sulphides. It is probable also that sulphide of silver is associated with those mixed sulphides, of which the iron pyrites predominates. Pyrolusite and manganic oxides are present, and I am inclined to think that cobalt or nickel may possibly be found to exist. Magnetic oxide of iron abounds as black sand, and is present throughout the various country rocks. As necessarily follows, for a certain depth below the surface, within reach of the atmospheric influences, the pyrites has become decomposed to a great extent, changing into hydrated and sesquioxides of iron, giving a highly stained and ferruginous aspect to the lodes, more especially to the footwall. It seems to be in the lower part of the reef or lode that these heavy pyritous elements have settled. There can be no doubt that at a sufficient depth to resist atmospheric action the pyrites is unchanged, and the vein will assume a dense and hard character throughout. There can be no doubt that a great portion of the gold is closely combined and held imprisoned by the pyrites, which is undoubtedly auriferous in nature, and much resembles the auriferous pyrites of the Nevada mines. The ancient miners well knew this, and calcined all the stone before crushing, washing, and annal gamating the residual fine gold.

There can be but little hesitation in determining the auriferous character of the contained pyrites, and in at once deciding that the Wynaad is a gold bearing land, and its reefs truly suriferous. The great question is whether this country is of sufficien

fragments of veinstone which abound on certain flats and slopes. All this, however, is quite superficial. The alluvial deposits occur as recent and ancient.

RECENT.—First, surface earth, which spreads over the whole country. Second, present river beds and bars. Third, recent depalluvial deposits. Operations are only carried on by native washers in the first and second at present, and we know but little of the latter deep deposits, which occur as large extending flats, and are now swamps often utilised for cultivating rice and paddy. At or near Devalah I discovered evidences of extensive old workings on one of these flats, numerous pits or shafts having been sunk, probably to the lower white clay or mother rock, and the lower stratum of recent earth, debris, or clay, would contain the gold.

ANGIENT DEPOSITS.—Of these also we have but few indications; however, since the writing of Mr. King's report satisfactory proofs have been arrived at of the presence of these in the Wynand. Ancient alluvial beds and deposits are common to all true gold countries, and are the accumulations of old rivers or sheets of water, which flowed and extended, geologically speaking, many ages ago when the crust of the country was higher and less denuded than atthe present time, when the streams have eaten deeper into the earth's crust, have become narrower, deeper, and more rapid in their flow. The contour of the country having completely altered, the present streams running in very different courses, and, as explained above, at a much deeper level than the ancient streams. As may be expected, the deposits may be discovered where no existing river is near for some miles, through great alteration of the surface of the country. Often these cament beds, as they are now frequently called, have become covered up by more recent surface washings, by the disintegration of the higher slopes at dates after their deposition, for it must be remembered that, whilst the main level of streams are lower than the ancient beds, a river running at a high

America are washed bodily down by gushing shoots of water is great quantity. They run down long and wide gutters for some miles, the gold settling among the stones which pave the bottom of the channel, and is collected at various periods. In other places, where the cement is too hard or water scarce, the deposit is romovel and crushed bodily. If too poor the lowest portion resting on the mother rock or older strata is simply mined. Sometimes shafts are supply considerable depths to cut and work these beds. At Secutive mother rock or older strata is simply mined. Sometimes shalts as sunk considerable depths to cut and work these beds. At Seputtee the present river of that name has cut through an ancient and trusteement deposit, and a clear section is shown on the present river escarpment at a very few feet above the present stream. The accient bed exists as a mixture of rolled pebbles, mostly quartz stone, fragments of country rock, &c., cemented with the sand and (evidence of a dark material) also white clayey and silicious seams into a had dense conglomerate. There is a section of some 20 to 30 ft. st is despest portions, and above it some 10 or 15 ft. of recent alluvial deposit, thus disguising its presence. The bed rests on the moltest rock, which is very soft and decomposed, of a red colour, as if of a granitic or gneissic nature, but much decomposed, probably at time of the ancient sheet of water or stream existing above, present stream cuts it almost at right angles, or apparently as, all there can be no doubt that the old bed represents a trus agrificial cement deposit, and was deposited by a very different systam of river cours been pierce when I vis drift had h tense comp had evider up attemp had worke down the of cement ever, quite worked to any purpo Having district, I that may tity of the The sev question a 2.—The evidences tions carr

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river courses and flow to those existing at the present day. It has been pierced to same 20 or 30 ft. by a drift, which was full of water when I visited it, but which did not prevent it being seen into. The drift had been left at its commencement, probably through the intense compactness and obduracy of the deposit.

The natives had also made some attempts at working the bed, and had evidently removed some 4 tons of the material, but had given up attempting to mine the deposit, the small amount of gold present evidently not being sufficient to induce further work. They had worked into the soft rock beneath the deposit, and then broken down the suspended cement. There can be no doubt that this bed of cement is auriferous, but to a very limited extent. It is, however, quite possible that the lowest strata of the deposit might be worked to a profit, as there is sufficient water adjacent for almost any purpose.

worked to a profit, as there is sufficient water adjacent for almost any purpose.

Having now established the fact of the Wynaad being a true gold district, I may proceed to bring before your notice the deductions that may be arrived at relative to the existence of a sufficient quantity of the previous metal to make gold mining there profitable.

The several headings under which we can discuss this important question are as follows:—

1.—The wide spread occurrence of gold in alluvial, river beds, and surface of ground.

2.—The great extent of ancient mines and mining operations, and evidences of systematic mining on a large scale, and also the operations carried on by native tribes at present.

3.—Two tribes of native gold seekers exist, one, being very intelligent, points to the probable fact that they are the descendants of skilled miners.

skilled miners.

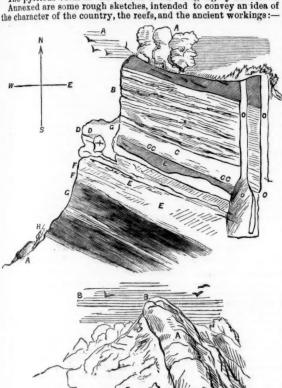
4.—Geological deductions: the fineness of the gold, strength of lodes, probability of deeper ground being productive; alluvial beds, deep, recent, and ancient; reason of the surface gold being fine, and no nuggets at surface up to the present time; continuation of lodes in depth.

5. Great extent of geological development of the district. Simi-

in depth.

5.— Great extent of geological development of the district. Similarity to the chief gold-bearing countries.—Australia, Russia, California, and Nevada.

The pyritous veins of the Nevada mines being highly auriferous. Annexed are some rough sketches, intended to convey an idea of the character of the country, the reefs, and the ancient workings:—



A, shows a section of the strata of the Bear Reef at right angles to the strike of the reef near Devalah.

A, surface alluvial.

B, gneissic strata.

A, surface alluvial.

B, gneissic strata.

c, reef, upper part white.

c, ferruginous footwall.

D, portion left as arch by ancient workers, very hard.

+, old native open-cast working, penetrating beneath footwall of lode into the ferruginous quartz; old archway still left.

c, o, old pits or shafts sunk some distance from surface; some to depth of 70 ft.

B, shows a bird'

B, shows a bird's-eye view of the outcrop of the Monarch Reef on a hill top, and the vein will be seen striking down the hill slope. This reef is traced for nine miles.

A, bold cutcrop of reef on hill top, hard white quartz. b, outcrop down the slope. b b, a loose boulder of veinstone. c, foot country rock of a talcose character.

down the slope. b b, a loos rock of a talcose character.

Section of a hill in the neighbourhood, showing outcrop of the reef, and the manner in which the reef is gradually wearing away from west to east.

A, hard surface of reef, and which for some little distance forms the surface of the content of the hill.

the surface of the eastern slope of the hill.

the surface of the eastern stope of the finit.

B, soft footwall.

C C, leaders and soft ground, full of ferruginous bands of quartz, laminated with mother rock, decomposed soft laminated, and very varied, but all red or yellow in colour, with bands of white flookan

varied, but all red or years.

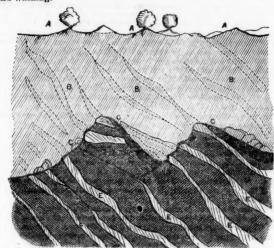
here and there.

D. p. strata, thin, of underlying talcose schist.

E. boulders of compact veinstone, fallen down.

. . . dotted lines show where reef had once continued, but through vast ages had washed away.

\* \* \* \* vast old workings, and remmants of extensive slucing



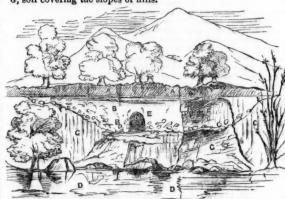
The object of the above sketch is to show the denudation (estimated by Mr. King, Government geologist, at 2000 ft.) and the probable lie and development of some of the reefs. It will be observed that the heavier and more developed portions of the veins appear to flatten as if borne down by the greater strength and weight existing in that portion of the reef. Notice the development on the hill tops and the ridges which have resisted denudation.

A, ancient land surface of gneistic crystalline and schistose formations.

B, continuation of vains (real) descriptions.

B, continuation of veins (run) denuded away.
C, present surface outline of country.

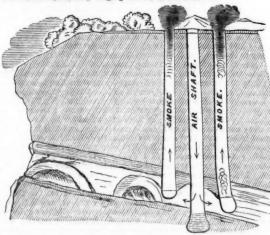
D, country rock section.
E, quartz and auriferous veins or reefs.
G, soil covering the slopes of hills.



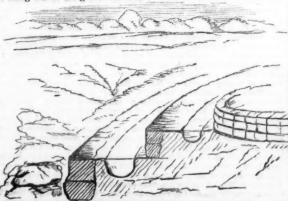
The above is a faithful representation of the alluvial cement bed t Seeputtee, as it appears on the river side.

A., surface soil, from 5 to 10 ft.
B., cement bed, or ancient river bed.
C., decomposed vertical rock.
D., present river Seeputtee.
E., old working.
F., short drift, recent,
G., excavation in soft rock under old cement bed.
B., lowest layer, very large pebbles, much rounded.

B", lowest layer, very large pebbles, much rounded.

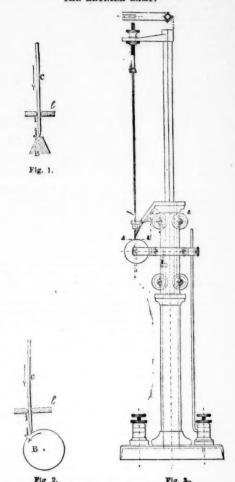


The above is a section showing ancient mines, and method adopt  $\,\mathrm{d}$  of using fire to bring the roof down.



The above shows remains of old work in the shape, of retraced sluicings, the face of each stage being built up with country stone, granite, or similar material.

THE DIVISION OF THE ELECTRIC LIGHT. THE REYNIER LAMP.



It is well known that the electric light can be obtained in two distinct ways—either with the voltaic arc or by the incandescence of a refractory body heated by the passage of a current. It is the second mode alone which will at present be considered. The experiment of reddening a platinum wire—or, better, a wire of ridio-platinum—by placing it in the circuit of an electric current, is one of the most frequently made in physics. The heating is the greater in proportion to the resistance of the wire, and for a given metal the resistance increases as the diameter is diminished. Light is obtained by this means, but it is very small in quantity. It must not be said that, by some artifice hitherto unknown, the production of useful illumination by the incandescence of a metal is impossible; but until now this method has not produced light properly so called—that is to say, light capable of being practically employed for illumination. One of the principal inconveniences of metallic wires is that if the intensity of the current be not very carefully attended to the wire melts.

Mr. King, an English physicist, is, says Mr. Fontaine, the first who

sible; but until now this method has not produced light properly so called—that is to say, light capable of being practically employed for illumination. One of the principal inconveniences of metallic wires is that if the intensity of the current be not very carefully attended to the wire melts.

Mr. King, an English physicist, is, says Mr. Fontaine, the first who entertained the idea of replacing the voltaic arc by the incandescence of a conductor, his patent being dated November 4, 1845, and what is curious is this patent makes mention of platinum and retort carbon—the two materials which have since been employed by all who have turned their attention to the same problem. My invention, says Mr. King, has for its object the employment of metallic conductors, or continuous carbons heated to whiteness by the passage of an electric current. The best metal for this purpose is platinum; the best carbon that from gas retorts. According to Mr. King's arrangement the light was produced in a vacuum tube. A little rod of carbon was used for the production of the light. The two ends of this rod were embedded in two small carbon blocks, kept at a proper distance from each other by the porcelain frame to which they were fastened. The lower carbon block was in connection with a metallic conductor, terminating in a bath of mercury. The other conductor was connected with the voltaic pile. The inventor then produced a vacuum in the tube, and placed at discretion one or several lamps in the circuit, taking care to regulate the current so as not to melt the carbon rod. It will thus be seen the divisibility of the electric light is no new idea. The real difficulties encountered by Mr. King and all the physiciats who late review his idea really arose from the cutting of the carbon pencils, which taken from a non-homogeneous mass were very costly and easily broken, and also in the absence of a good generator of electricity.

At present, however, thanks to the progress made with dynamoelectric machines, and especially in the middle, larger whilst raising its temperature as much as metal; and, lastly, the carbon is infusible, and its temperature may be raised without danger of fusion.

danger of fusion.
Several Russian inventors—Messrs, Kosloff, Konn, Bouliguine, and others—have been working in the same direction, both in Russia and in Paris, and their efforts have not been useless, for they have sustained attention in this interesting question. At the same time, Mr. Ferdinand Carré has succeeded in producing artificial carbons of any diameter and of any length, which has been of paramount importance to those who have been attempting to produce the light by incandescence. In the memoir read by Count du Moncel before

Eclairage à l'Electricité; lampe système Reynier. Par Hippolyte Fontaine. Fractionement de la Lumière Electrique. Par Alfrad Niaudet. La Fatiga. nent de la Lumière Electrique. Par Alfred Niaudet. La Nature.

the Academy of Sciences it was stated that the new Reynler electric lamp by incandescence depends on the following principle. If a thin pencil of carbon pressed laterally by an elastic contact, and pushed forward in the direction of its axis upon a fixed contact, is pushed forward in the direction of its axis upon a fixed contact, is traversed between these two contacts by a sufficiently energetic current it becomes incandescent in that part, and in burning thins down towards the extremity. As the consumption of the end goes on the pencil, constantly pushed forward, progresses by sliding between the elastic contact, so as to abut incessantly upon the fixed contact. The heat developed by the passage of the current in the carbon pencil is greatly increased by the combustion of the carbon. At first Mr. Reynier contented himself by pressing the carbon pencil, (C [Fig. 1], upon a small mass, B, also of carbon, establishing a lateral contact, l, to limit the length of the incandescent portion, if Then he puts into communication the mass, B, with the negative pole, and the contact piece, l, with the positive pole of a pile. It will then be seen that the carbon pencil becomes pointed at j, and is consumed as regularly as an ordinary candle. But he showed at the same time that the impurities contained in the carbon left a residue which rapidly encrusted the contact; and, the carbon left a residue which rapidly encrusted the contact; and, not wishing to complicate his lamp by the addition of a counterpoise, determined to replace the lower fixed contact by a movable one

In this new arrangement the rod, C, rests in front of the vertical In this new arrangement the rod, U, rests in front of the vertical axis on a little cylinder of carbon, B, which the tangential composition of the weight of the rod causes to rotate, and consequently removes the residue which isolates the point. Starting with this idea, Mr. Reynier has made a series of improvements in his apparatus, until at last he has hit upon the combination shown in Fig. 3, which is especially remarkable for its simplicity. The carbon pen-cil is fixed at the extremity of an arm attached to a square brass rod, which slides into the lamp standard between four little rollers. rod, which slides into the lamp standard between four little rollers. The cylinder of carbon is supported by a collar fastened to the top of the lamp standard. The cylinder is isolated by a mica fitting, and its axis rests on a balance. The carbon is guided a little above the upper contact by a silver dowell, and the upper contact is obtained by a little block of carbon affixed to the extremity of an oblique rod in direct contact with the b dy of the lamp. The wire from the positive pole of the battery is connected by the screw on the left side (Fig. 3), the wire from the negative being connected with the other. The pencil of carbon being supported on the cylinder or wheel makes it rotate very slowly, and this cylinder being mounted on a little balance the motion is diminished, and the breakage of the ignited carbon pencil is prevented. The carbon pencils are 1-12th of an inch in diameter, 1 ft. long, and last for two hours. This lamp has been worked with a battery of 12 Bunsen elements, and the light given is estimated to be equal to 15 or 20 Carcel burners, the light at the same time being very steady. Some experiments with the Gramme machine and ten Reynier lamps, made at Messrs. Sautter and Lemonnier's, at Paris, gave excellent results. The Gramme machine, worked by a well-arranged portable engine, was run at 920 to 930 revolutions, and the resistance between the machine and the lamps was 100 meters of 4 in concepts.

portable engine, was run at 920 to 930 revolutions, and the resistance between the machine and the lamps was 100 metres of \$\frac{1}{2}\$-in. copper wire. The carbons were of the size mentioned (1-12th in. pencils, \$1\frac{1}{2}\$ in. diameter cylinders, \$2.5\text{ths.in.}\$ thick in the centre and \$1.6\text{th}\$ in. 14 in diameter cylinders, 2-5ths. in. thick in the centre and 1-6th in at the circumference), and the results were that with five lamps on the circuit the galvanometer indication was 25; intensity of light, 15 burners = 75 burners total luminosity. With six lamps on circuit the galvanometer indication was 20; intensity of light, 13 burners = 78 burners total luminosity. With seven lamps the galvanometer indication was 20; intensity of light, 10 burners = 70 burners total luminosity. And with ten lamps on circuit the galvanometer indication was 15; intensity of light, 5 burners = 50 burners total luminosity. In conclusion, M. Fontaine states that the Serrin lamp under the same circumstances, with a deviation of 21 per cent., gave a luminous intensity of \$20 burners. The Reynier lamp he says is simple, easily used, and not costly—three great re-21 per cent., gave a luminous intensity of \$20 burners. The Reynier lamp he says is simple, easily used, and not costly—three great recommendations—and what may be reserved for him in the future in the way of industrial illumination has yet to be seen.

# ROCK-BORERS.

A full muster of the members and friends of the Mining Institute of Cornwall was witnessed at the Town Hall, Camborne, on Tuesday, to listen to a paper by Mr. John Darlington on the above subject. Not only is Mr. Darlington an engineer of wide experience and close observation, but he is the inventor of a rock-drill, and is known to possess full and accurate knowledge of all that pertains to that valuable aid to manual labour. His paper was, therefore, looked forward to with the greatest interest. Nor was the audience one whit disappointed. From a document, which will make an octavo pamphlet of 150 pages, Mr. Darlington read extracts, and out of these we will endeavour to make an abbreviated account. Among those present were—Mr. G. L. Basset, the President of the Institute, in the chair; Messrs. J. H. Bolden, D. W. Bain, W. Husband, and J. R. Daniell, Major and Mrs. Pike, Mr. and Mrs. A. Preston and Miss Preston; Mr. E. Scudamore Angove and Mrs. Angove; Mr. C. Twite, Capts. W. Teague, W. Teague, jun., R. Pryor, W. Pryor, Rich, A. James, and T. Angove; the Revs. W. C. Chappel, Crutell, and James Parkes; Dr. Hudson, Mr. Butlin, Mr. N. J. West, Messrs. J. Budge, J. Henderson, W. H. Rule, F. Scott, Goffin, Davey, Tyack, Thomas, Hocking, Jennings, Kitto, B. Smith, G. Eustice, E. Carter, C. Thomas, W. Rich, J. Borlase, &c. Mr. Provis, the Secretary of the Institute, having read the minutes of the last meeting, Mr. Basser at once called on Mr. Darlington to read his paper, entitled— Tuesday, to listen to a paper by Mr. John Darlington on the above

# OBSERVATIONS ON ROCK-BORING MACHINERY.

Mr. Darlington observed that only a few years had elapsed since rock-boring machines were rendered successful in subterranean operation; yet at this time their application extends to numerous mining centres throughout the globe, and in years to come this class of machinery, mitigating the miner's toil and aiding the object class of machinery, mitigating the miner's toil and aiding the object of his research, will occupy yet a more distinctive and important position. The boring machine has been aided by new explosives of unsurpassing strength. The result has been a rate of progress in sinking and driving levels of the most beneficial character. To attain a quick rate of speed it is indispensably necessary to have recourse to good boring machinery, strong explosives, quick charging of the shot holes, and rapid removal of the stuff. Compressed air is the only pressure fluid suitable for driving boring machines in close levels and shafts. There are varied and serious losses, so that the useful work stored within the air receiver in the form of compressed air only represents from 35 to 40 per cent of the work compressed air only represents from 35 to 40 per cent. of the work due to steam, while the work returned by boring machines is only 20 to 25 units for every 100 of the steam work. In other words, from four to five boiler horse-power is required to give one effective horse-power in the boring machines. Air compressors may be driven turbines, or water-pressure engines. Turbines, running under a fall of 530 ft. of water make 300 to 400 revolubines, running under a fall of 530 ft, of water make 300 to 400 revolutions per minute, while the compressors make 80 to 100 strokes. Wet compressors (at the Mont Cenis Tunnel) and fast-speed compressors (at the St. Gothard Tunnel) were first employed; the first-named is scarcely, if at all, employed in England; the latter have been mainly adopted, perhaps on account of their comparative cheapness of first cost. The wet slow compressor bears a somewhat similar relation to the fast-speed compressor that the Cornish engine bears to the locomotive—strength, durability, comparative slowness of speed, and economy. It gives the largest percentage of useful effect for the unit of power expended to secure it. The wet comof speed, and economy. It gives the largest percentage of useful effect for the unit of power expended to secure it. The wet compresses the air by means of a column of water moved by a piston; the dry by the piston itself, acting directly on the air, two or three divided jets of water being sometimes introduced into the cylinder cover, and a water-jacket enclosing the cylinder, for the purpose of absorbing the heat of compression. The speed of a wet compressor is, however, limited to about 100 ft. per minute. The receiver and air-pipes should be of sufficient capacity to run the boring machines without exhibiting much variation of pressure. No exact rule can be laid down for determining the dimensions of the receiver, but its capacity be eight or ten times more than the volume of air rebe laid down for determining the dimensions of the receiver, our its capacity be eight or ten times more than the volume of air re-

quired per minute for the use of the machines it will, probably, be quired per minute for the use of the machines it will, processly, be sufficient. Large receiver and air-pipes are desirable. The boring machines when well supplied with air will not only deliver their blows more uniformly and with the desired effect, but the friction in passing air through large pipes from the receiver to the machine will become inconsiderable.

The air-pipes from the receiver to the boring machine may be of cast or wrought in aither case they should be provided.

The air-pipes from the receiver to the boring machine may be of cast or wrought iron, but in either case they should be provided with round or oval flanges, properly faced, recessed, or scored. The pipe-joints are readily and effectively made by means of flat rings of vulcanized rubber. In the levels the main may be laid on the bottom or hung on the side towards the roof, the latter being a position sometimes preferred in continental mines. The advance pipe is, in some instances, formed of one pipe sliding within another, the inner one being drawn out as the end of the level is advanced. In mine headings a single railway is generally laid for the use of the borer carriage and tram-wagons. In some cases where the end is of exceptional width and a maximum rate of driving speed is requisite—in other words where the stuff must be removed in the shortest time possible—two railways are laid altogether or for a short distance from the forebreast. This arrangement of a double way allows two wagons to stand at the face and of a continuous removal of the stuff, one wagon being always available for filling purposes. The weight of the rail used should not be less than 18 bs. or 20 lbs, per lineal yard. The economic result attainable from the application of rock-drills is greatly dependent on the form and strength of the stand or frame which may be employed to carry the machines. If a drill is to deliver its blows to the bottom of its best of the stand or frame which may be employed to carry the application of rock-drills is greatly dependent on the form and strength of the stand or frame which may be employed to carry the machines. If a drill is to deliver its blows to the bottom of its hole in an effective manner, it must not vibrate and be deflected, as it were, to any appreciable extent from its axial line, nor should the tool react without giving the full effect of its impact to the stone. A frame, to be satisfactory, must be sufficiently rigid to withstand the reactive twisting effect, consequent on the rapid reciprocation of the machines; it must be constructed so as to admit of being fixed and removed quickly. It should afford the widest range possible for directing the drill to various parts of the forebreast, or for angling the shot-holes to such an extent as to ensure, by means of the explosive, the removal of the rock.

Moreover, the frame should be contrived so as to allow ample space for the workmen to move around and to get access to the machines.

Moreover, the frame should be contrived so as to allow ample space for the workmen to move around and to get access to the machines. At St. Gothard four cuts are made in a day of 24 hours; introducing and withdrawing the carriage consumes from 8 to 9 per cent. of the entire working period. [Mr. Darlington had a full description of the way in which the Darlington drill is worked, but omitted it as he did some scores of pages of statistics and other sterling information.] Mr. Darlington described in outline a shaft sinking stand introduced by himself at the Minera Mines, North Wales, in 1876. To Richard Travithick belongs the merit of designing and employing the first machine for drilling rocks. Of this man, whom the world has not yet delighted to honour, it may be truly said he invented for the benefit of mankind—he laboured that others might enter into his labours. At the close of the year 1812 Travithick had his attention called to a contract which had been taken by Messrs. Fox and Williams for quarrying stone, then required for the construction of the Plymouth Breakwater. On January 20 Travithick, addressed a letter from Camborne to Mr. Fox. jun., that he had been boring lumps of Plymouth limestone at Hayle Foundry, and found that he could bore five times as fast with a borer turned round than doing the work by hand in the usual way, also that the edge of the that he could bore five times as fast with a borer turned round than doing the work by hand in the usual way, also that the edge of the boring-bit was scarcely worn or injured by grinding against the stone, as might have been expected. Again, on February 14 he wrote from Camborne that the men could bore 1½ in. diameter 1 in. deep in every minute, with a weight of 500 lbs. on the bit. From the time the two men were employed boring a hole 12 in. deep he was convinced to a certainty that the engine at Hayle would bore as many holes in one day as will be sufficient to split 100 tons of limestone. For more than 40 years Trevithick's invention remained dormant. In 1844 Brunton, well known for his roasting furnace, suggested a wind hammer for boring holes and ventilating the working face In 1854 Bartlett constructed a boring machine for the Mont Cenis Tunnel, and since that time to the present inventors in Europe America, and Australia have applied themselves with untiring zeal, in spite of opposition, prejudice, and ignorance, manifested by the many, to the production of machines until success in this as well as in other different paths of human progress has been achieved.

in spite of opposition, prejudice, and ignorance, manifested by the many, to the production of machines until success in this as well as in other different paths of human progress has been achieved. In the race many fell out by the way. Among those may be cited Low, an able mechanic, an excellent draughtsman, and fertile inventor, and Edward Crease, who gave the world the "flying valve" and "double-headed piston," now the essential parts of three or four of the principal boring machines before the public. On the different varieties of percussion boring machines, it was observed that they all radiate, as it were, from two or three typical machines, and that several, if well and strongly made, will do excellent work, provided they are handled in a proper and an effective manner. No fair test of the efficacy of a drill is obtainable until it has undergone bard and regular work, along with other drills, on the same rock and under the same circumstances. High speed or low-speed is now due not so much to the machines as to having recourse to good tackle, able workmen, and a perfect organisation of the work itself. The most perfectly made high-speed locomotive cannot run quickly on a bad road, nor even on a good one can high speed be attained, unless the driver, signal, and station men do their duty promptly and effectively. So it is with rock-boring machinery; it is not the machines which are always imperfect, but the means adapted and insisted upon in applying them that lead to failure or only to the command of a partial success. Mr. Darlington next went into details about the boring tools or bits (the flat is, perhaps, best adapted for drilling hard and compact rock, the cross and X-bit for jointy and fissured rock, the Z-shaped bit for drilling holes in soft rocks, such as slate and shale), water and ventilating apparatus, and explosives, with a few minutestoheat and percussion. Mr. Darlington best adapted for drilling hard and compact fock, the Cross and A-bit for jointy and fissured rock, the Z-shaped bit for drilling holes in soft rocks, such as slate and shale), water and ventilating apparatus, and explosives, with a few minutestoheat and percussion. Mr. Darlington described gunpowder, nitroglycerine, and dynamite (the latter introduced by Noble, in 1867); of the latter of which he showed that its safety consists in its soft, mealy consistence, and that it is of the highest importance that complete detonation should be effected, so as to obtain the full effect of the explosion and prevent the formation of hypo-nitric fumes. No. 1 dynamite is estimated to be about six times stronger than black powder in its effective or shattering force. Lithofracteur and tonite were also explained; the best fulminate fuses were recommended, since mistaken economy or carelessness in using unreliable fuses are errors almost fatal to the attainment of a quick rate of advance, either in level or shaft; and the enormous increase of force by detonation over simple explosion was shown. Single, double, and treble detonators—the latter containing 540 grammes of fulminate—were explained, and practical instructions given for successful firing by means of electric fuses. The important advantage of these fuses was shown—simultaneous explosion, complete removal of ground within the zone of the explosion, safety for the miner, efficacy in wet shafts, removal of appliances and tools more leisurely and carefully before exploding the bales. High tension fuses fired by a frictional electrical machin is liances and tools more leisurely and carefully before exploding the pliances and tools more leisurely and carefully before exploding the holes. High tension fuses, fired by a frictional electrical machine; low tension fuses, fired by means of a battery, were explained and illustrated. At Ballacorkish the saving of dynamite in driving the deep level by electric fuses and application of electric blasting is equal to five pounds per lineal fathom, and the rate of progress acequal to five pounds per lineal fathom, and the rate of progress accelerated from one-eixth to one-eivernth. In going on to speak in detail of boring machines, Mr. Darlington pointed out that these constitute but one of a series of highly important inventions. Efficient air-compressors, suitable machine carriages, properly jointed air-pipes, the discovery of strong explosives, the development of a new system of arranging the snot-holes, the application of quick charging and blasting, and a thorough organisation of the work; but for these, boring/machines, however good they might be in themselves, would have afforded but a poor result to the miner. Hole for hole, in one and the same rock, one machine will probably be nearly as effective as another—that is, if the diameter of the cv-

be nearly as effective as another—that is, if the diameter of the cylinder, velocity of the piston, and width of the tool be fairly equal. A speed of 20 fathoms per month in a level with four boring machines is no greater in the boring result than one of 10 fathoms per month accomplished by means of two machines. The work per borer may be regarded as equal, although the speed of the advance in the former

case is doubled. Mr. Darlington proceeded to minutely detail the organisation and conduct of the work, explaining the circular and the square cut, with a combination of the two—successful sinking by the circular cut system having been effected at Minera Mines—the exact position of each distinct hole being left to the judgment of the men directing the machines. Having given specimens of driving ends at Carn Brea, Maesteg, the Hoosac Tunnel, Ballacorkish, and described the methods adopted by Dubois and François, and W. Blanch Brain, Mr. Darlington said the general tendency of recent practice is to bring into use larger machines for boring, to increase the diameter of a part, if not the whole, of the shot holes, to lessen the number of holes in a given area of rock, and to employ a greater proportion of dynamite per hole. Charging and blasting, firing by electricity, the respective cost of dynamite and powder, removal of stuff, and the strength and fixing of boring machines having been dwelt on practical results were shown, and the economy and speed of boring machines established. Accompanied by formidable statistics the work and cost of the Darlington, Beaumont, Barrow, and Ingersoll drills were shown—for one valuable table Mr. Darlington case is doubled. Mr. Darlington proceeded to minutely detail the tistics the work and cost of the Darlington, Beaumont, Barrow, and Ingersoll drills were shown—for one valuable table Mr. Darlington expressed his obligations to Mr. Provis. The comparative advantages of power over hand drills was shown in the cost, progress, ventilation, fresh air for the miner to work with, the quickened chances of successful results, lessened capital expenditure, and abbreviation of dead charges from nine or ten to three or four years. Two machines and nine men in a level would be generally sufficient. Too much of the economic result is at present attributed to the boring, and not enough to the proper and effective organisation of the work. The boring machine must necessarily be a reto the boring, and not enough to the proper and effective organisation of the work. The boring machine must necessarily be a reliable and good one, constructed so as to withstand the heavy wear and tear to which it may be subjected. The apparatus on which the machines are mounted should be of ample strength for holding them firmly to their work, while giving them every facility for drilling shot-holes in any required position. Very high speed compressors are not desirable, but such as can stand reasonable wear, and yield a maximum result for the power expended to produce it, Emp'oy the strongest explosives for the centre cut, and det mate (not burn) the explosive. Fewer holes, drilled with machines of increased power, should be valued with the greatest cost of the explosive. Shot-holes should be bored as deep as may be found effective for the removal of the ground, having also regard to the time of boring, which usually increases with the increased depth of the hole. Electric blasting offers in itself an element of security and success. The time is near at hand when boring machines will form a part of every mining plant—that is, in cases where a considerable amount every mining plant—that is, in cases where a considerable amount of work is intended to be done in moderately hard ground. It would be well to consider whether such plant should not be under the control of a mechanical engineer, rendered responsible for the efficient performance of the apparatus, and the judicious conduct of the work. The straightened and untoward circumstances connected with Cornish mining are not conducive to the trial of numerous experiments, even to add value to so important a subject; but the success of rock boring machinery is established beyond any doubt or question, and it remained for the agent, and especially the young miner, to acquaint themselves with the various appliances in use, with the different methods and modes of organisation employed in performing the work, and then to apply their knowledge for the benefit of themselves and their fallow-men.

ing the work, and then to apply their knowledge for the benefit of themselves and their fellow-men.

The President, Captain Teague, and Messrs. Goffin, Waddington, Husband, Darlington, Butlin, W. Teague, jun., and D. W. Bain spoke, the result being a too brief discussion, but a very cordial vote of thanks to Mr. Darlington for the great labour and research he had thrown into his paper, and the interesting extracts given from it.

# PATTERSON'S ELEPHANT ORE STAMP.

Patterson's patent Elephant ore stamp, which has been erected at Wheal Uny through the kindness of Captain Rich, the manager, for the purpose of testing its capabilities, was subject to a public trial on Tuesday under the supervision of Messrs. Willoughby Brothers, of the Central Foundry, Plymouth, the makers of the machine. Among those present to witness the working of the machine were Dr. C. Le Neve Foster, Captain Teague, 2ptain Teague, jun., Captain Pearce (Dolcoath), Captain James (Wheal Comford), Captain A. T. James (South Frances), Captain Thomas (late of Wheal Crenver), Mr. W. Pike (Camborne), Mr. John Hocking (engineer, Redruth), and Mr. Scott (London). There was only one machine exhibited, with two heads making 130 strokes a minute, driven by a small engine, S-inch diameter cylinder, with 12-inch stroke, giving out about 10 or 11 horse power. The crestuff stamped was passed through a very fine grate at the rate of 1 ton in 75 minutes. One proof of the smallness of the power required to drive this stamp is the fact that it is driven with a 4-inch single belt, and the machine runs so easily that one-half of this on the tight pulley is sufficient to drive it a full speed. Wheal Uny through the kindness of Captain Rich, the manager, for

The machine is a very compact one, the whole of the workings occupying but a comparatively small space, and everyone who has witnessed it are surprised at the great simplicity of construction, and the evident ease with which it does its work. Another feature, not less striking, is the fewness of its parts, and one very important consideration is that any ordinary mine smith can repair such parts as may get out of order. The result of yesterday's working was considered highly satisfactory as regards the quantity of stuff stamped in a given time, but from the fact of the steam being used in a non-condensing engine an accurate opinion could not be formed if steam had been used under the most favourable circumstances.

At a meeting of the managers and others interested in the surrounding mines, who expressed themselves as highly pleased with the At a meeting of the managers and others interested in the surrounding mines, who expressed themselves as highly pleased with the simplicity and efficiency of the machine, it was proposed by Captain Teague, sen., and resolved, that with a view to thoroughly testing the elephant stamps a subscription should be raised from the different mines in order to pay part of the cost of hiring a condensing engine for working them. The Elephant stamp should be tested for a month; the coal and tinstuff carefully weighed, and a correct record kept of all expenses, and all items to be checked by a person on behalf of the mines, and some one on the part of the Messrs. Willoughby. In this manner the value of the stamps could be ascertained exactly. It was further resolved that Mr. Patterson and the Messrs. Willoughby be requested to look out for a suitable engine, and report to an adjourned meeting.

The Messrs. Willoughby Brothers, in estimating the cost of stamping about 1800 tons of ore per month, state that three machines would be required, each machine passing 20 tons in 24 hours. A 16-inch diameter cylinder engine, 32-in. stroke, making 70 revolutions per minute, having an average pressure on the piston of 18 bs.

10-inch diameter cylinder engine, 32-in. stroke, making 70 revolutions per minute, having an average pressure on the piston of 18 bs. per square inch, would give out 40 indicated horse-po wer, and would be ample to work the three machines, as shown by the fact that an 8-in. engine, 12-in. stroke, giving out 10 to 11-horse power, was equal to driving one machine. The 16-in. engine, being fitted with condenser and also cut-off gear, so as to work the steam expansively, and obtaining its auxoluterom a preserve preportioned beiler, would condenser and also cut-off gear, so as to work the steam expansively, and obtaining its supply from a properly proportioned boiler, would use up 100 or 120 lbs. of coal per hour, or about 24 cwts, per day of 24 hours. They estimate the cost for the month of coal, wages (two men and a lad). oil, grates, and heads, at 67l. 4s. per month, or nearly 9d. per ton. If the usual cost was 1s. 9d. per ton, then, where 1800 tons per month were stamped, the annual saving by using the Elephant stamp would amount to nearly 1100l., or just the first cost of three machines, including royalty.

This estimate of nearly 1100l. saved per annum was much under the mark, where the ore was not so hard to stamp as that of Wheal Uny, or where the grates in the coffer were not so fine, so that more tone of terms of the stamp as that more

the mark, where the ore was not so hard to stamp as that of Whesl Uny, or where the grates in the coffer were not so fine, so that most tons of stamped ores passed in a given time. At Cariggan Mine, near St. Austell, one of these machines regularly passed 1 ton in 51 minutes when tested through a six weeks' trial, equal to 23 tons in 24 hours, instead of 20 tons only as taken in their estimate. Then, again, the indicator showed when another machine was stamping free crushing stuff, that 5-horse power only was required to drive it instead of above 13-Lorse power allowed in the foregoing estimates. One of those machines had worked some months in San Francisco, showing its capabilities at dry stamping quartz.

— Western Daily Mercury.

WATSO Circular was the following quence of th reply to o In the year "Records of Fotos" (second Mining Interess in 1843, Mr. Wamall risks in Warson Brott period in the a experienced ad period in the a gperienced ad und from the mboldened to with mines an Messra. WA' nines, as well heir advice an industry will i ways equal the imming.

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# WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS. MINEOWNERS, STOCK AND SHARE DEALERS, &c. 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Gircular was transferred to the columns of the Mining Journal, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina

in reply to one which appeared in the ordination to the general public in the year 1843, when mining was almost unknown to the general public in the year 1843, when mining was almost unknown to the general public that we want to the situation was first called to its advantages, when properly conducted, in the stemation of British Mining." commenced in 1837, and published in 1843, "Cempendium of British Mining." commenced in 1837, and published in 1843, "W. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (first series, 1862), "Cornish Motes" (second series, 1862), "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1862), "Cornish Notes and Mining. "Messa of the series, 1862), "Cornish Notes and sharedealing than there is at present; and from the lengthened experience of Messas. Watson Brothers they are smboldened to offer, thus publicly, their best services and advice to all connected with mines and mining. "Messa. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, founded on the best practical advice they can obtain from the mining districts, founded on the best practical advice they can obtain from the mining districts, simbing.

mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make shirl Circular now published in the Mining Journal more extensively known, and

their Circular now purchased to state—
That they issue daily to clients and others who apply for it a Price List (as surplied to most of the London and country papers), giving the closing prices of Kining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fornightly etlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Fublic Funds, Raliways, Telegraphs, and all other Securities dealt in upon the Stock Exchanges, they are constantly getting mines laspeted for their own guidance, and will also obtain special reports of any parisalar mine for their clients, for the inspecting agent's fee of £2 2s.

We agree with our correspondent that, judging from the dis-closures at recent meetings, it is well to know how the finances of a company stand before buying shares; but we are not in a position to ellighten him as to one or two of those he names. D'Eresby to enlighten him as to one or two of those he names. D'Eresby Mountain is in 1024 shares, of 20l. each, limited, and fully paid. The machinery is all erected, has gone to work, and the company have nearly 4000l capital besides. Aberllyn is in 2560 shares, of 10l. each, limited, and fully paid, and when all the necessary machinery is erected and paid for the company will have at least 4000l in hand; and which if, as expected, the mine at once makes good returns will be invested as a reserve fund. D'E-esby Consols has over 3000l in hand, and is nearing Cobblers' lode, which we trust will prove a good and lasting one. Parys Mountain shares are 3l, fully paid, and limited. The price to be paid to the company for Morfa Du was 5000l, of which we think about 1500l remains to be received. Morfa Du is in 12,000 shares, of 1l. each, limited, and with 17s. 6d. per share paid up, but only a little over 7000 were issued; after paying Du is in 12,000 shares, of 1*l*. each, limited, and with 17s. 6d. per share paid up, but only a little over 7000 were issued; after paying Pays Mountain, therefore, the finances will be in a good position; about 1000*l* has been spent in the bluestone, and a return of 500*l* already made. In cost-book mines, as we have often explained, the liability is practically unlimited, and any amount of capital can be mised so long as the shareholders are willing to pay calls. The great mischief attending many of our limited companies has been the small portion of capital left for working purposes, and the desire of shareholders to divide profits closely up, so as to get large dividends for a time. A small sum concurrent with dividends should be set aside and invested as a reserve fund for contingencies. Had Tankerville done this the mine financially would not be in its present position.

present position.

South Roman Gravels shares are 11. 10s. fully paid, and the company have about 2000 unissued. At the last meeting, instead of winding-up the company, the shareholders passed a resolution authorising the directors to spend the balance of a few hundred pounds in hand as an experiment, which so far has been eminently successful, and may lead shortly to important results. The money has not all been expended yet, and the machinery, even at a low bas not all been expended yet, and the machinery, even at a low estimate, is worth, we should think, 700%. The question is, therefore, if the discovery continues, will the shareholders when required take up the unissued shares at a price, so as to give any further capital that may be necessary? The lode at present is yielding rich carbonate of barytes and stones of lead.

In reference to the question of labour it would be well if some little uniformity of ways could be adopted, and one thing is ouited.

In reference to the question of labour it would be well if rolle little uniformity of wages could be adopted; and one thing is quite certain, if mines are to be worked profitably every economy must be practised with metals at their present price.

CARBONATE OF BARYTES.—We cannot say the price of this article, nor name a market for it. Perhaps some of our corre-

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CARBONATE OF BARYTES.—We cannot say the price of this atticle, nor name a market for it. Perhaps some of our correspondents may know.

Saturdally, 18 to 19; Carn Brea, 34 to 36; Dolcoath, 29 to 31; South Frances, 64 to 7; South Condurrow, 10½ to 11; Roman Gravels, 6½ to 6½; Aberllyn, 110 13; Chementina, 1 to 1½; Parye Mountain, 8s. to 10s.; Morfa Du, 17s. 6d. to 28s.; Leadhills, 2 to 2½; East Van, 2 to 2½; Devon Great Consols, 30s. to 35s.; Tankerville, 2½ to 3½; East Van, 2 to 2½; Devon Great Consols, 30s. to 35s.; Tankerville, 2½ to 3½; Devon Great Consols, 30s. to 35s.; Tankerville, 2½ to 3½; Devon Great Consols, 30s. to 35s.; Tankerville, 2½ to 3½; Devon Great Consols, 30s. to 35s.; Tankerville, 25; Tankerville, 26; Tankerv

OAY, DEC. 12.-There is very little business doing, and quotations are

TRUESDAY, DEC. 12.—There is very little business uoing, and about the same as yesterday.
Fibb., DEC. 13.—Market continues very quiet. Carn Brea, 31 to 33; Dolecath, 28 to 30; South Frances, 6½ to 7; South Condurrow, 10½ to 10½; Agar, 4 to 4½; Pevor, 6 to 6½; Yan, 18 to 19; Grast Luxey, 18 to 19; Tankerville, 2½ to 3; Parys Mountain, 8s. to 10s; East Van, 2 to 2½; Aberllyn, 11 to 13; West Tolgus, 38 to 40; Devon Great Consols, 30s. to 35s.

M. WILLIAM H. H. WATSON having had some years' experience in Practical Engineering and Mining in Cornwall, as well as two years' practice in the London Stock and Share Markets, begs to offer his advice and services to Shareholders and Intending Investors in Mines, and in the Purchase and Sale of Shares.

Address: W. H. H. WATSON, 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.

HERODSFOOT.—It was decided on Tuesday by the shareholders to offer the mine and its valuable plant for sale by uction as a going conc-rn. The Chairman (Mr. M. Loam) stated that 10 tons of lead had been raised from the mine during the past week. It appears there is a 60-in. pumping-engine, two bollers, and all the necessary machinery belonging to a productive mine. The solicity of the present shareholders.

The course they are about to pursue is occasioned by financial difficulties preventing the further development of the mine by an additional outlay on the part of the present shareholders.

WEST POLDICE.—It is fathed that the late Sir. F. M. William's algorithm of the mine is divided—has been sold by Lady Williams to Mr. J. R. Paull, solicitor, of Truro, and other gentlemen for about 700'. These shares about three years ago touched Si. each, equal to about 33,000'. on the above interest.

DOLCOATH.—We are glad to hear that this famous old mine is looking exceedingly well. Dolcoath will lose a good friend in Sir Frederick Williams, who always took the warmest interest in its prosperity. When Sir

William Williams died a few years ago be was the largest adverturer in the mine, holding at that time 175 shares, which were then marketable at 1881, per share, worth (say) 25,0001.—West Briton.

#### THE HEATING POWER OF HYDROGEN. TO THE EDITOR OF THE MINING JOURNAL

THE HEATING POWER OF HYDROGEN.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—As the result of enquiries I have made, and experiments I have witnessed, in the process of making gas from superheated steam and petroleum, in which the superheated steam is made to give up its oxygen during its passage through red-hot iron tubes and then through coke and iron scraps, thus producing hydrogen gas, subsequently combined with petroleum to give it illuminating power, I have ascertained that the cost of the hydrogen is not more than about 4d. per 1000 ft. It occurs to me that this fact can be utilised in the reduction of metals by employing the hydrogen thus produced as a heating power in furnaces constructed to admit of such use. If consumed as fast as it is made the danger from storing it would be avoided. Forty years ago I had a narrow escape for my life while experimenting with this gas, and retain a respectful admiration of its power. One ton of coal will now raise as much steam as 60 years ago it took 10 tons to produce, the gain being due to the more scientific employment of the fuel; but the waste of heat is still so great that its utilisation is a matter of world-wide importance. In no process is the waste so enormous as in the reduction of metals, especially of the previous metals, producing great losses by excessive volatilisation and the mechanical dispersion of the finer particles. I have long thought that defects of this character could be avoided, and when Mr. Probert first went out for the Richmond Company I asked his especial attention to the subject of improving the furnaces, which at that time were distributing metallic dust rich in gold all around the works; he has reduced this loss to a great extent, but I believe there is still great room for improvement, and I think it will be in the direction of supplying the oxygen necessary by other means than the blast of air, and by the use of hydrogen as the chief heating medium.

John Elliott. ment, and I think it will be in the direction of ear, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means than the blast of air, and by the use of necessary by other means that the blast of air, and by the use of necessary by other means the necessary by other means th

#### POCKET-BOOK FOR CHEMISTS.

However good a memory one may have it is always much more satisfactory in matters requiring such absolute accuracy as chemical analysis and allied subjects to be able to refer to some printed record if it be only for the purpose of confirmation, but hitherto this has been in many cases impracticable, owing to the costliness and bulkiness of the necessary works preventing their being placed in private libraries; a complete remedy, however, has now been provided by Mr. Thomas Bayley, A.K.Coll.Sci. Ire'and, the Demonstrator of Chemistry, Analysis, and Assaying at the Bristol Mining School, in the shape of a handsome little pocket volums \* (5 in. by 3 in., and less than 1 in. thick), opening lengthwise, and very conveniently arranged for reference. Mr. Bayley observes that in practice he has often felt the want of a collection in a convenient form of factors, atomic weights, and other useful data, and has, therefore, brought together the matter which in every day practice proved to be useful. There is a valuable chart which shows graphically the strength of solutions of substances in common use, and has the adstrength of solutions of substances in common use, and has the advantage over tables that it renders calculation unnecessary, whereas, unless the numbers found by experiment are identical with those in the tables, which rarely happens, a calculation must be made when

Amongst the tables given are one showing the symbols, atomic Amongst the tables given are one showing the symbols, atomic weights, and atomicities of the elements, and another showing the atomic weights according to the latest determinations. Further on there is an excellent table of coefficients for salts found in the course of an analysis, by which the amount of the constituent is sought by simple multiplication. There is a table (contributed by Mr. W. Dawson) for the conversion of grammes, and it is to be regretted that the Anglicised form of the word has been adopted, the inconvenience and danger of which is seen on page 246, when there Mr. W. Dawson) for the conversion of grammes, and it is to be regretted that the Anglicised form of the word has been adopted, the inconvenience and danger of which is seen on page 246, where there is the rule—"To convert grains per litre into grains per gallon, multiply by 70." From this it follows that there are 70 litres to the gallon. Had the correct orthography "grammes" been used this error would have been impossible. Is the reduction in the next table to grains or grammes? In the case of powerful poisons used in medicine the indolence which suggests the Anglicising might render the chemist liable to trial for manslaughter, since the mere omission of a dot would give the unfortunate patient a dose nearly 16 times more powerful than intended. The comparative table of British and metrical barometers will be very useful, and the same may be said of the tables for corrections for temperature and capillarity. A very extensive table of boiling points, specific gravity, observed vapour density, and solubility of various liquids is given, which will be much referred to; and there is also an excellent dictionary of solubilities. Ample notes are given on specific gravity, gas analysis, water analysis, qualitative analysis and reactions, volumetric analysis, and manipulation. In the table showing the density of water at ordinary temperature the integer I must be removed at the top of the second and third columns. The glossary of the most important minerals gives the formula, hardness, specific gravity, crystalline system, and behaviour with acids; and there are tables for assaying, for alcohol, beer, and sugar. Much technological matter is also given relating to potash, soda, sulphuric acid, chlorine, tar products, petroleum, milk, tallow, photography, prices, wages, &c. The volume contains a vast amount of useful information, and considering the enormous amount of labour involved in compiling, and that it is the first edition, it appears to be fairly correct. It is a work that will soon become a standard companion

and after revision will be invaluable,

"A Pocket-Book for Chemists, Chemical Manufacturers, Metallurgists, Dyers
Distillers, Brewers, Sugar Refiners, Photographers, Students, &c.," By Thomas
BAYLEY, Assoc.R.C.Sc. I. London: E. and F. N. Spon, Charing Cross.

# POST OFFICE LONDON DIRECTORY.

Scarcely a year passes without some improvement being introduced in the Post Office London Directory, although each edition appears to be as near as may be perfect; and the volume just issued—the 80th annual edition,\* that for 1879—forms no exception to the rule. The constantly increasing size of London, and the supposed objection of having a directory in two volumes, necessitates various devises for keeping down the size whilst adding to the contents. The improvement this year consists in so folding the map that any part can be referred to without unfolding the whole; in the entire recomposition of the Commercial Directory in somewhat smaller but extremely clear type, with old faced figures, so that the 135,000 names of firms and individuals included in it are compressed into 680 pages. The district comprised has also been somewhat enlarged, so that at present the whole of that wast manufacturing district which has sprung up in the vicinity of the Victoria Docks is included. The Trades and Professional Directory has also been improved in several important particulars, not the least of these being the inservice of a complete list of the sweetyers of the Stock. roved in several important particulars, not the least the insertion of a complete list of the members of the Stock Ex-change, embracing not only those who have separate offices in the City, but also those who merely deal in the House; there is likewise a separate list of dealers in stocks and shares who are not members of the Stock Exchange. To a large number of the readers of the Mining Journal these lists will be of considerable value. A glance at the new trades introduced each year is not uninteresting, although sometimes the titles taken by individuals to indicate the business sometimes the titles taken by individuals to indicate the business in which they are engaged appears scarcely necessary, and not very explanatory. This year, for example, there is the trade of geological engineer introduced, the individual practicing it being D. T. Ansted, of Westminster. It can scarcely be supposed that such a calling would be claimed by either an inspector of mineral properties or a mining engineer, yet the only other occupation to which the new term could be considered applicable would be to one who creates or designs geological phenomena where they have not previously existed. In connection with the inspection and reporting on mines, the new geological engineer cannot claim to be the first who has adopted the calling, although he may have fully entitled himself to

\* The "Post Office London Directory for 1879." The 80th annual publication London: Kelly and Co., Great Queen-street, Lincoln's Inn Fields.

the designation. Asbestos steam packing makers, decorated tinplate manufacturers, hydro-carbon engine manufacturers, ocarina makers, oxide of iron merchants, &c., are also among the new trades this year, although some of them only include a single name.

The several portions of the Directory are so familiar to all men of business that it is almost needless to refer to them; but with regard to the Street Directory, Messrs. KELLY put in a reminder of its application which is worth repeating—it will assist in deciphering illegible signatures. This reminder ought to serve as a hint to many writers who send communications to the press, since it constantly happens that individuals who are able to write the body of their letters in a decipherable character conclude it with a heiroglyphic, intended to represent his name, which is positively disgraceful to anyone who has received any education whatever. At the commencement of the work is a list of commercial stamp duties, a list of the Chambers of Commerce in England, as well as of the Chambers of Agriculture and Trade Protection Societies, and an almanac; whilst for the convenience of those who can dispense with some portions of the Directory, or who prefer it in several volumes, Messrs. KELLY have arranged to issue the Streets, Commercial, and Trades at 12s, each; the Court at 5s.; the Banking at 3s.; and the Conveyance at 4s., so that those requiring a particular class of information can readily have it upon reasonable terms. Of the character and workmanship of the Directory it is unnecessary to say more than that it is in every respect equal to its predecessors; it is an admirable and indispensable requisite in every office.

#### THE STEAM-ENGINE .:

There are few scientific subjects of more general interest to practical men than applied mechanics, and the particular branch which relates to the steam-engine has an attraction with everyone. The history of the steam-engine and its development from the time of Watt is admirably given in the "Text-Book of the Steam-Engine,"\* by Prof. GOODEVE, of the Royal School of Mines, which has just been issued. Commencing with an account of the steam-engine as it existed in the time of Watt, and of the ideas then prevalent as to the nature of heat, Mr. Goodeve gives a summary of some physical properties of steam, and next enters upon a thorough investigation of the principles of the modern theory of heat in its application to the steam-engine. Subsequent chapters deal with the conversion of motion, the expansion of steam, the action of valves. In the fifth chapter an extremely clear and useful account of the indicator and its construction is given, and as this is a subject upon which many There are few scientific subjects of more general interest to pracchapter an extremely clear and useful account of the indicator and its construction is given, and as this is a subject upon which many have very involved notions Mr. Goodeve's explanations will prove of great value. His explanation on the character and properties of the silde valve, and the object and effect of lead and lap, also conveys a large amount of information.

In the chapter on boilers he commences with the Cornish boiler, very truly remarking that it stands first in the history of the sub-

In the chapter on boilers he commences with the Cornish boiler, very truly remarking that it stands first in the history of the subject, having been adopted in Cornwall in the early part of the present century, and being, in fact, the type from which the Lancashire boiler has been derived. Mr. Goodeve next discusses the considerations which influence the forms of boilers, and then explains how the strength of cylinders under internal pressure may be mathematically ascertained. In the seventh chapter the compound cylinderengines of Woolf, of Sims, and McNaught, and others are described, and diagrams are given which make the explanations especially clear. The concluding chapter refers to miscellaneous details, and embraces information as to the regulation of an engine, Giffard's embraces information as to the regulation of an engine, Giffard's injector, and link motion for reversing an engine. The illustrations, which are of the character usually drawn on the black board, are so numerous that almost as much instruction could be obtained from the book as from listening to the lecturer himself. Mr. Goodeve's Text Book is a work of which every young engineer should possess himself, as there are few which in a similar space would give him

such an abundance of useful facts,

\* "Text-Book on the Steam-Engine." By T. M. Goodeve, M.A., Barrister-atLaw, Lecturer on Applied Mechanics at the Royal School of Mines. London:
Crosby Lockwood and Co., Stationers' Hall-court.

COLLIERY MANAGER'S POCKET BOOK.—The tenth annual edition of Mr. W. Fairley's Colliery Manager's Pocket Book, Almanac, and Diary (London: Hutchings, Hutton-street and Colliery Guardian Office) has just been issued, and is fully equal to its predecessors; it contains a vast amount of information likely to prove useful to those for whom it is intended. There are a large number of facts and figures which although they may have been carefully learned cannot be recalled to the memory with sufficient certainty to be availed of, and in such cases it is convenient to have a pocket book of this kind to refer to. In connection with miners' safety-lamps, for example, there is an interesting table showing the number of the lamps required to produce the light of one standard candle—Mr. Fairley states that it requires 8 Davy lamps, 18½ Stephensons, 24½ Upton and Roberts, 4½ Clannys, 3½ Mueselers, 2½ Parish's, and 2 common miners' candles of 30 to the pound. He also gives the common names of certain chemicals, showing that the common name of nitric acid is aqua fortis; of chloride of sodium, common salt; of bisulphide of tin. COLLIERY MANAGER'S POCKET BOOK.—The tenth annual edition fortis; of chloride of sodium, common salt; of bisulphide of tin, Mosaic gold; of acetic acid, vinegar; and so on. The value of the work is much enhanced by the diary and calendar, which are required constantly in the pocket, being bound separately from the larger tabular portion which is more commonly required in the office.

FEEDING FUEL TO FURNACES.—An improvement in Frisbie's feeding apparatus, patented some ten years since, has been invented by Mr. F. HUTCHINSON, of Grimston, York, which consists essentially of a feeding box in which the fuel to be fed to the furnace is charged. This feeding box is carried by a shaft, and by the motion of the feeding box upon its shaft it can either be brought immediately under the opening in the bottom of the furnace, or turned aside from that position. The said feeding box has a moveable bottom, and when the said feeding box, charged with fuel, is brought under the opening in the said feeding box is traised, and the fuel contained in the said feeding box introduced into the furnace. As the feeding box is turned from under the opening in the bottom of the farnace the said opening is closed by an apron or curved plate attached to the rear of the feeding box, which plate passes under the opening in the furnace as the feeding box retires from the said opening. In the original apparatus the feeding box was charged with fuel by manual labour; in the improved arrangement it is self-feeding. Mr. Hutchinson places, by preference, in front of the furnace a hopper or chamber for containing a store of the fuel with which the furnace is to be fed. At the open bottom of the hopper is an inclined shoot or passage, the lower end of which terminates at the curved plane in which the top of the feeding box travels as it retires from under the opening in the bottom of the furnace. To the ferfort of the feeding box is attached an apron or the furnace. travels as it retires from under the opening in the bottom of the furnace. To the front of the feeding box is attached an apron or curved plate similar to that at the rear of the said feeding box, the said aprons and top of the feeding box being concentric with the shaft on which the feeding box turns. When the feeding box, after having discharged its contents into the furnace, retires from under the furnace it comes under the lower end of the shoot, down which fuel from the hopper descends and fills the feeding box. When the charged feeding box is brought under the opening in the furnace the bottom of the shoot is closed, and the descent of fuel arrested by the apron in front of the feeding box, which apron advances under the bottom of the shoot as the feeding box retires from under it. By the construction and arrangement of parts described the charging of the feeding box from under the opening in the furnace effecting the filling of the feeding box with fuel ready for its next advance under the opening in the furnace. the opening in thefurnace.

the opening in the furnace.

HOLLOWAY'S PILLS.—This purifying and regulating medicine should occasionally be had recourse to during fog.y, cold, and wet weather. These pills are the best preventive of hoarseness, sore threat, dipluthe is, pleurisy, and asthms, and are sure remedies for congestion, bronchittis, and inflammation. A mederate attention to the directions folded round each box will enable every invalid to take the pills in the most advantageous manner; they will be taught the proper doses, and the circumstances under which they must be increased or diminshed. Holloway's pills act as alteratives, aperients, and tonics. Whenever these pills have been taken as the last resource the result has always been gratifying. Even when they fail to cure, they always assuage the severity of the symptoms and diminish the danger.

# Mining Correspondence.

#### BRITISH MINES.

BRITISH MINES.

ABERDAUNANT.—S. Toy, Dec. 11: The deep adit cross-cut is now driven north 14 fms. 5 ft., where we have cut through the north lode; it is 8 ft. wide, full of sulpinur throughout, but poor for lead. The forebreast is now into clean killas, not so hard for driving and discharging a little water.

ABERLLYN.—John Roberts, Dec. 11: We have made good progress this week in the rise in the back of the deep adit. We are rising now in the shale, which we have just cut into, which underlies the course of blende, leaving the body of the blende lode to stand. As far as we can now see of the lode it is getting to be much of the same quality and character as the lode in the No. 2 adit—good blende, with stones of lead in it. The No. 2 adit driving south to meet the top of the rise is much the same character as hat week, only having stronger pockets of lead. The winze in the bottom of the No. 1 adit is without change. The contractor completed the building of the crusher-house yesterday, and we shall get on the roof directly. The severe frost and snow militates very much against the progress in our surface wor).

BETTWS-X-COED.—H. T. Haley, December 12: Setting Report: To drive the shallow adit cast, by two men, stent the month, at 31. per fathom; this sond is looking much better since setting, now worth 1 ton per fathom. To drive the deep adit east, by is men, stent 6 fathoms, at 40s. per fathom; the lode in this end has been disordered, but is now worth 15 owts, per fathom, the lode worth about 10 owts, per fathom. To drive the deep adit, by four men, the month, at 23s. 3d. per fathom the lode of the worth about 10 owts, per fathom. The hone of the pumpleg wheel is now started, and works most satisfactorily. I hope to get the runsher and dressing machinery at work very quickly, and from the heap of or already at surface, and the general appearance of the mine, I think good and lasting returns may be expected. The weather for the past few days has greatly impeded our surface work, but I hope it will soon moderate

Tathom.

BOJUMIS.—H. Hotchkiss, Dec. 11: Beyond a further slight improvement in as appearance of the lode in the 45 and I have nothing new to report this week, the ground in the engine-shaft is more favourable for sinking, and the men are

The genum in the engine-shaft is more favourable for sinking, and the men are naking good por cress.

LLEAENIEAL,—J. Roberts, Wm. Sandoe, Dec. 11: We have completed cutting the ground in the water-wheel pit, and are only now awaiting a change in the weather to commence obniding the masonry on the top of rock to carry the france stones, line, &c., being ready on the spot. We have removed the steamengine, and everything about the shaft so as to put in a new bob, as the old one was too only too small for the new work but also rotten. We shall finish strightening the shaft next week, and be ready for fixing work forthwith.

OMBMARITM.—T. Harrs, T. Comer, Dec. 12: There is no particular change in the 15 end or the adit cross-cut since last reparted, but we are pleased to say there is a substantial improvement in the lode in the north-west adit end, where the lode is about 2 ft. wide, with veins and seams of good lead and blende throughout, which we are saving for dressing; there is no enough to value, but it has all the favourable appearances for a further improvement, which we hope to meet with shortly.

the tote is a nont 2 it. wise, with veins and seams of good lead and blende throughout, which we are saving for dressing; there is not enough to value, but it has all the favourable appearances for a further improvement, which we hope to meet with shortly.

COURT GRANGE.—James G. Green, Dec. 11: I am sorry to say that everything is frost bound, and in consequence dressing is totally suspended; it is the teverest whiter, so far, experienced for years past. We have about 12 tons of ore r. ady, and would have the 20 tons ready by time for selling.

Dr. BROKE.—J. Phillips, Nov. 11: We have had more than a week's hard frost, so that nothing has been done at the 55 of any consequence since the report of the 4th inst. The stope in the back of the 25 east is producing 35 evits. of lead ore per fathom, ind the stope in the back of the 25 east is producing 35 evits. of lead ore per fathom, ind the stope in the back of the 25 east and west of the winze from 18 to 20 ewis, per fathom. We have with some difficulty kept going one of the pumping-wheeis: the weather, however, is changing.

DENBIGHSHIRE CONSOLIDATED.—R. Prince, A. Francis, Dec. 12: There is an important change taking place in the 112 west; a strong feeder of water issuing from the forebreast, and other indications presented lead us to have very little doubt about shortly making a great discovery here. To morrow we hope to common es sinking below the 80, where there is a good breadth of ore ground. We have sent off a further lot of lead ore this week.

DERESBY CONSOLS.—John Roberts, Whiliam Sandoe, Dec. 11 There is no change this week in the end, which is being driven west towards Cobbler's lode, with the exception of the lode opening a little wider.

DERESBY MOUNTAIN.—J. Roberts, W. Sandoe, Dec. 11: Being anxious to see something more of the lode opening a little wider.

DERESBY MOUNTAIN.—J. Roberts, Whiliam Sandoe, Lee, as the lode in the end was pinched rather small, we put the men to sink a little where we believed there was a good branch of lead gone down,

strongly of opinion that the lode will be no less valuable as we go down. I severe frost and snow have retarded our dressing operations, as everything is frozen up.

DERWENT.—John Morpelh, Dec. 12: I was through the most of our workings yesterday. The 98, cast of Jeffrie's shaft, by the side of middle vein, is without change. No. 1 stope in the back and the sides immediately under are worth. 16 cwts. of ore per fathorn; No. 2 stope is worth 15 cwts.; No. 3, 15 cwts.; No. 4, 16 cwts.; No. 5, 17 cwts.; and the flats, which are hard, 18 cwts. The 93, west of same shaft, is being vigorously pushed; in this end we have a stronger vein, and it yields a little saving work. In the back of this level No. 1 stope yields. 17 cwts.; No. 2 has improved to 15 cwts.; No. 3 is peoper, producing 17 cwts.; and No. 4 is also poorer, at present worth 18 cwts. The bargain booked rising and stoping out of workings is poor; here we have risen about enough to enable us to start another stope at the setting next week.—Sun Vein; This vein yields in the 70 cast 10 cwts., and the setting next week.—Sun Vein; This vein yields in the 70 cast 10 cwts., and the stope in the back 12 cwts. West of shaft the stope over the same level is poor; worth 7 cwts.—Westgarth's Shaft, Middle Vein; The 32 cast is going at about the usual rate—I fathom a week; this end and the 83, west of Jeffrie's shaft, are now within about 5 ms. of meeting, and by the New Year, or immediately after, I nope we shall have a through communication; the end at present yields \( \frac{1}{2} \) ton of ore per fathom, but better ore is standing on the south side of the level. The 74 west is without change. The stope in the back yields 15 cwts. of ore per fathom. The frost is very keen, and a vast quantity of snow is on the ground, thus making dressing, &c., very hindersome. We are, however, persevering as well as it is possible to do under the circumstances.

DUBBY SYKE.—W. Vipond, Dec. 6: The end is going on east as usual. There is no change to report in the appearance of the v

the last month 6 ims. 3 ft. 6 in. It is now driven east from the rise altogether 22 fms. 6 in.

EAST CHIVERTON.—R. Southey, Dec. 12: The lode in the bottom level (74), I am pleased to say, is looking very well, also good progress is being made in our shaft work. We shall now take the men employed in the bottom level to assist the shaftmen to complete the changing of the new pitwork. All the ground is out for the plungers, and the cisterns are in their places, so that a few days now will suffice to fix the new and pull out the old pumps, &c., when we shall commence with all speed to sink below the 74, and in the meanwhile we shall stope the back of the 74, and send some lead to market.

EAST CRAYEN MOOR.—David Williams, Dec. 12: The new shaft from surface will be down to the depth required this week; the vein in the bottom has further improved, being fully 4 ft. wide, and worth for lead ore 40 cwts. per fathom. We have this week raised solid blocks of ore about 5 cwts. each. The cross cut south to the parallel veins from the 42 has been extended 17 fms.; driven during the abouth, 4 fms. 1 ft. 6 in. The ground in the end of the 56 is a little easier to work, the vein being 2 ft. wide, with occasional stones of ore.

EAST VAN.—Wm. Williams, Nov. 11: The 70, west of shaft, is driven 14 fms.; we have this month set the men to cross north at the present end to prove the width and value of the lode, at 80s. per fathom. The cross-cut north at the end of the 25 fathom level west for the north lode is set to six men, at 50s. per athom.

athom.

E66AIR FRAITH.—Thos. Glanville, Dec. 7: Eastern Shaft: The lode in the astern shaft, below the 70 yard level, will produce 3 tons of copper ore per yard. The stopes above the 70 yard level, west of shaft, will yield 2 tons of lead ore per yard. In the 46 yard level, west of shaft, we are still cross-cutting north through he lode. In my report of the 23rd ult. I informed you we had commenced to live the 70 yard level cast of shaft, and by its appearance thought we should neet with an early improvement. I am ghad to say the lode will now yield 2 tons of rich copper ore per yard. We are still driving the cross-cut south to intersect main part of Esgair Hir great lode.

the lode. In my report of the shaft, and by its appearance thought we amount of rich copper or per yard. We are still driving the cross-out south to intersect main part of Esgair Hir great lode.

GAWTON COPPER, —George Rowe, George Rowe, jun., Dec. 7: The driving of the cross-out south at the 117 is being pushed forward with all possible vigour; of the ground is looking exceedingly kindly, and spotted with good quality yellow copper ore, showing every indication of being near the south part of the lode. The lode in the winze sinking below the 105 is 6 ft. wide, being principally capels, spar, mundle, and ore, world 151, per fathom. The tribute department is without change.

GLASGOW OARADON.—Wm. Taylor, Wm. J. Taylor, Dec. 10: Elliott's shaft is now down the required depth for the 12, and we have commenced to drive a cross-out south in that level towards the lode, which we expect cannot be more than 3 of 4 fms. off. The cutting of the lodes in this deeper level is now an important point. In the 50 east the ground is more favourable, but the lode has not much improved yet, and there is very little change in driving west on the branch. The whize sinking in the bottom of the 78, before the 90 east, is suspended until the end is further east, where the lode is worth fully 25t. per fathom. We are still cross-cutting south from the 78 east, where we are meeting small branches, but no lode to value. We are driving a midway level west on a south branch, which is opening good ground, worth 15t. per fathom. The stopes and pliches through out the mine are yielding about their usual quantities of ore, varying in value from 12t. to 33t. per fathom. We sampled yesierday (computed) 2.0 tons of ore, which will be sold on the 19th inst.

GENRONY—R. Rowe, Dec. 10 I We are still making good progress in sinking the engine-shaft below the 50, and the lode is still from 4 to 5 ft. wide, with a little more spar and blende than usual, but not yet of any value.

GORSEDD AND MEMELYN OONSOLS.—Wm. Edwards, Dec. 12) Nothing more yet instruc

ward over 1 ft. wide, solid, and in our opinion it is a new vein going at the back of the shaft, and, there ore, must be intersected by the south cross-out. The tri-buters' bargains have improved this month, and we think our prospets very

good.

GREAT HOLWAY.—Dec. 12: We have to notice an improvement in the lode at the Garden shaft; the cross-cut has proved its extension, and the contents are both lead and blende—improving daily. Should this go on as at present it will be a great discovery, for there is not an inch of ground worked on the eastern side. The severe frost has stopped us proceeding with the engine-house, and also the dressing operations. True Blue is looking as well as ever, and your suggestions

The severe frost has stopped us proceeding with the engine-house, and also the dressing operations. True Blue is looking as well as ever, and your suggestions are having consideration.

GREEN HURTH.—Wm. Vipond, Dec. 6: The sump west of No. 1 cross vein is now down 35 ft.; still in hazel, and no water to cause any trouble. If we keep as clear of water as we have hitherto, the four men will not be long in working this down to the limestone, and once into that position, I think the prospects of the mine will be considerably brighter than they have been for some time past. Two men are still stoping on No. 3 cross vein; it is yielding about 6 cwts. of ore per fathom, and I think we have had a few fathoms of better ground in this than we have had lately. We find the sole of the incline level very difficult to work; the arch is not good to keep, and we have not been able to get as deep as I should like, besides the weather is against us when it stops the wheel. I expect we shall get into a better position with this next week if we can get the pump to work. We have not been able to dress this week; the washer and some of the boys have been partly working the hand-pump, and also doing some repairs in the level.

HARWOOD.—W. Tallentire, Dec. 5: Herdship, South End: Very good progress is being made with the driving south. There is no indication yet of the east and west veins, but they cannot now be far off. The vein we are driving on is looking really well, and on the whole mineral like.

HINGSTON DOWN.—Thomas Richards, Dec. 12: Balley's Shaft: In the 172 east the lode is large and promising, producing 4 tons of ore, or 8!, per fathom. In the 173 west the part of the lode carried is 4½ ft. wide, and contains capel, quartz, and mundie, with some good quality copper ove intermixed. In the topoe in the back of the 172 east the lode is producing some saving work. In the tributer's stope and pitch in the back of the 110 the lode is worth 4 tons of ore, or 8!, per fathom. In the backer's tope and pitch in the back of the 110 th

I per fathom. The ground in the deep adit is moderately easy, and can prove is being made.

LADY WeLL.—Athur Waters, Dec. 12: Nothing new hasoccurred in the mine worthy of notice since my report of the 5th inst.

LANRWST.—Robt. Knapp, Dec. 10: We have placed two men to drive the ditend, where the lode is large and orey throughout, yielding about 2 tons of ead ore per fathom. I have removed two men from the 14 east in consequence of the ground having become considerably easier for driving, and put them to lrive the western end at the same level, where the lode is looking very promising, and irom its appearance ought shortly to improve. I expect the diagonal shaft will be down deep enough by the end of this month to drive back to meet the 4 from Endean's shaft, so that the water from the diagonal shaft may be sent back at that level to Endean's shaft. As soon as the diagonal shaft is down the equired depth we shall cut through and strip down the lode now standing under the footwall.

back at that level to Endange and Series of the total tree to Endange and Series of the product of the footwell.

LEAD ERA.—J. A. Ede, Dec. 11: No. 1 shaft has passed through the flat, which is only 5 fms. under surface, and in the box forwarded to you you will find samples of the product, which I hope will prove satisfactory. At No. 2 shaft, which is ahead fully 500 yards, the outcrop, or shallow, or surface flat has been intersected at a depth of 6 fms.; samples have also been forwarded to you. You may rely that these evidences of mineral wealth will prove specially productive and remunerative, even in the immediate future. We have commenced to extend the adit north, on the north and southhole, and I am pleased to add that the vein is fully 5 ft. wide, and composed of all the elements and characteristics of rich and productive mines throughout the district. The surface buildings are being completed, and this branch of expeniture will end in a fortnight.

LOVELL (TAE).—Joseph Prisk, Dec. 12: The improvement in the eastern part of mine still holds good. The lode in the 40, east of Howman shaft, being in ft. wide, and worth 20. per fathom; this end is now 14 fms. east of the sid shaft, or 54 fms. east of the side that the mine was likely to prove rich eastward in the gully a little ahead of our present working, and I think those reports will shortly be a little ahead of our present working and I think those reports will shortly be a little ahead of our present working and I think those reports will shortly be a little ahead of our present working and I think those reports will shortly be a verived. Our dressing operations are idle at present, in consequence of the severe frost.

a little ahead of our present working, and I think those reports will shortly be verivled. Our dressing operations are idle at present, in consequence of the severe frost.

MELLANEAR.—John Gilbert, Dec. 11: The 30 fm. level, west of Gundry's shaft, was driven last month 6 fms. 2 ft.; the lode is 2½ ft. wide, and still worth 1 ton of ore per fathom. We think this end will improve soon, as there are only about 6 fathons more to come over the rise in the back of the 40. The 40, west of No. 2 rise, west of Gundry's shaft, was driven 4 fms. 5 ft. 6 in.; lode 6 ft. wide, and worth ½ ton of copper ore per fathom. We consider this falling off in value only temporary, as we had to pass through a similar piece of poor ground in the level below for about 12 fathoms in length before we met with the second run of ore ground. The rise in the back of the 40, west of Gundry's shaft, was put up 5 fms. 3 ft.; this rise is up 10½ fms., and the lode is 4 ft. wide, worth 3 tons of ore per fathom, and has been a very good lode for the whole distance, averaging at least 4 tons of ore per fathom. The 50, west of tundry's shaft, was griven 3 fms. 2 ft.; the lode is 5 ft. wide, and worth 2 ton of ore per fathom. The rise in the back of this level, was put up 3 fms. 3 ft.; the lode is 2 ft. wide, and worth 3 tons of ore per fathom. The 50, west of Gundry's shaft, was drived 5 fathoms esat of Gundry's shaft, on a loie 4 ft. wide, and worth 3 tons of ore per fathom. The 60, west of Gundry's shaft, was driven 2 fms. 2 ft. 6 in.; the lode is 4 ft. wide, and worth 3 tons of ore per fathom. The 60, west of Gundry's shaft, on a loie 4 ft. wide, and worth 3 tons of ore per fathom. The 60, west of Gundry's shaft, was driven 2 fms. 2 ft. 6 in.; the lode is 4 ft. wide, and worth 3 tons of ore per fathom. The follow we holed the winze in the bottom of the 90, and we put the men for a few days to cut through the lode very near the cross-cut from Gundry's shaft, on a loie 4 ft. wide, and worth 3 tons of ore per fathom. The follow west of Gundry's shaf

pround is easy for driving, and the lode has every indication of further improvement.

The 100, east of Gundry's shaft, was driven 8 fms. 1 ft. 6 in.; the lode is 4½ ft. wide, and worth 2 tons of ore perfathom. The 100, west of skip shaft, was driven 8 fms. 1 ft. 6 in.; the lode is 4½ ft. wide, and improved to about 1 ton of ore per fathom. The 100, west of Gundry's shaft, was driven 2 fms. 1 ft. 6 in.; the lode is 4 ft. wide, and producing good stones of ore. Gundry's shaft was sunk 3 feet 6 inches below the 100; these men are also carrying ground for bearers and cistern plat, top door piece, plunger pole connection, &c. We have had a good deal of frost and snow this week, which has very much interfered with all our aurface works, completely stopping, the building of the new engine-house, and the ear rying of stone, &c. We have also had great difficulty in currying on our dressing operations, but we exclusite that we shall sample on Tuesday next about 575 tons of copper ore.—Stopes: In the stope in the bottom of the 67, west of the cross-course, the lode is 7 ft. wide, and worth fully 6 tons per fathom, and the lode is 4 ft. wide. The lode in stope in back of the 67, east of No. 3 rise, is 5 ft. wide, and worth 5 tons of ore per fathom. The lode in stope in the back of the 69, east of Gundry's shaft, is 6 ft wide, and worth 5 tons of reper fathom. The lode in the stope in the back of the 60, east of Gundry's shaft, is 6 ft. wide, and worth 5 tons per fathom. The lode in the stope in the back of the 60, east of ore per fathom.

MINERAL CORPORATION OF GREAT BRITAIN (HAFNA MINE).—Wm.

MINERAL CORPORATION OF GREAT BRITAIN (HAFNA MINE).—Wm. Bennetts, Dec. 11: No. 1 add is set to four men, 4 fms. steut, at 110s. per fathom; the lode in the end 4 ft. wide, composed of gossan, carbonate of lead, and sulphur mundie. It is a beautiful looking lode. No. 1 stope, in back of No. 1 adit, set to two men, 4 fms. steut, at 55s. per fathom; lode worth 15 owts. 1 lead per fathom No. 2 stope set to three men, 5 fms. steut, at 60s. per fm.; lode worth 20 owts. of lead per fathom. No. 2 adit set to four men, 4 fms. steut, at 90s. per fathom. I am glad to say that the lode in this end is improving every foot driven, and I expect a good improvement in this end daily. No. 3 adit cross-cut set to four men, 3 fms. stent, at 170s. per fathom. No. 4 adit set to four men, 4 fms. stent, at 100s. per fathom; the lode in this end is at present very disordered by a canneter branch or lode. This I look upon as a favourable feature, as there are two or three cannete of the present end, and one of the last men we worked in the shaft tells me that there is a good lode of lead in the bottom of the shaft. I have a good many tons of lead ready for the crusher as soon as the reservoir is made. In conclusion, I beg to say that the mine is looking well.

MONYDD GORDDU.—James G. Green, Dec. 11: Setting Report: The 24 to drive west, by six men, at 50s. per fathom; no change no notice in this end dite. MINERAL CORPORATION OF GREAT BRITAIN (HAFNA MINE).

beg to say that the mine is looking well,

MONYDD GORDDU.—James G. Green, Dec. 11: Setting Report: The 34 to drive west, by six men, at 80s. per fathom; no change no notice in this end since I last wrote, ground easy for progress. To sink a winze in the western end of the 24, to six men, at 50. per fathom; lode worth 1 ton per fathom. To cross cut south in the 24, under the 12 winze, to two men, at 110s. per fathom; this cross-out is intended to prove the south caunter lode at this level (the 24). To stope the back of the 24 on junction, to 10 men, at 60s. per fathom single measure; lode worth on an average 1/5 ton per fathom. To drive the 12 west, to two men, at 41. per fathem; lode large, but of no value. I, however, think this level should be extended to the point where ore has been found near the surface, by the hedge. To stope the back of the 12, on main lode, to six men, at 67s. 5d. per fathom single measure; lode improved, worth 12 owts, per fathom. We have about 3 fms. more backs over this to stope, and it is important to get it through as quickly os possible, to enable us to have the accumulated stuff on stulls for dressing. To tram and fill all the stuff in the mine, to four men, at 4s. 3d. per score skiploads. You will observe that all the above prices are exceedingly low. This fact is owing to the plentifulness and cheapness of labour. Everything at surface is frootbound since yesterday, and dressing, in consequence, totally suspended. We shall, therefore, not have the sampling ready in the time specified.

MORFA-DU.—T. Mitchell, Dec. 12: We have this week removed the bottom end men to assist in holing a piace of ground between the adit and 38, in order to make a conveniont place for stoping, consequently we have not raised much blue stone this week; we have about 4 fathoms to drive, and hope to complete this early next week, at which place we shall be able to raise a good quantity of ore. We have commenced leading a vessel with bluestone.

fathom, as before. In the 60 east end, on the north part, it is worth 61, per fathom. The 85 east is worth 71, per fathom, and the 48 west 61, per fathom. On the south of these stoping. In the 49 yards level good program the south of the 10 per fathom, and the 48 west 61, per fathom. On the south of these stoping. In the 49 yards level good program to the south with the driving; the lode is well defined, producing some nice ore, from the looks very well now. We have not yet intersected the lode in the 20 cross-cut, it is considered to the 10 per fathom. We have not yet intersected the lode in the 20 cross-cut, it is considered to the 24 are going on much as usual, but there is no change whatever in the back of the 24 are going on much as usual, but there is no change whatever in the pice calling for remark.

ROMAN GRAVELS.—A. Waters, Dec. 12: The new south engine-shaft sink, implementally the produced the 20 cross-cut, it is given by the 10 by nime mea, at 30. per fathom; now down 4 from 3 ft. telow worth 2 tons of lead ore per fathom. The same level to drive per fathom; look with machine drill) at 9.1 0s. per fathom in your 25 tone or fathom; worth 25 tone, per fathom. The stop of shaft by six men, at 12. per fathom; worth 3 tons per fathom. The stop of shaft by six men, at 12. per fathom; worth 3 tons per fathom. The stop in back of dilito, south of Jack's winze, by four mea, at 4. 18. per fathom; worth 3 tons per fathom. The stop in back of dilito, south of Jack's winze, by four mea, at 4. 18. per fathom; worth 2 tons per fathom. No. 3 stope in back of the 50, north of shaft, by four men, at 4. 18. per fathom; worth 3 tons per fathom and the shaft by four men, at 4. 18. per fathom; worth 3 tons per fathom and a shaft by four men, at 4. 18. per fathom; worth 3 tons per fathom and a shaft by four men, at 4. 18. per fathom; worth 3 tons per fathom and a shaft by four men, at 4. 18. per fathom; worth 3 tons per fathom and a shaft by four men, at 4. 18. per fathom; worth 3 tons per fathom. No. 3 stope in back of

ore this week.

— Wm. Rich, Wm. Williams, Henry Abraham, Dec. 10: The rise in the back of the 93 east is worth 18t, per fathorn. The rise in the 93 west is worth 11t, per fathorn. The 90 end east is letting out water freely, and the lode is worth 7t, per fathorn. The rise in the back of the 80 east is worth 16t, per fathorn. The rise in the back of the 80 east is worth 16t, per fathorn. The rise in the back of the 80 east is worth 16t, per fathorn. The rend, east of King's, driving towards this rise, is yielding low quality tinstone but we hope soon to have an improvement here. The to le in the Plantation shall below the 70 is worth 8t, per fathorn. The 70 end west of this shaft is worth ber fathorn. The 70 end, west of the Plantation shaft, is being driven on the oper lode; this lode is nearly perpendicular, and at the 70 stands some 7 fms. not of the tin lode. The end at present is unproductive, but the ground is moderately easy for driving, and the lode looks promising. We sold last week 27 tons of some from this lode, at 7t. 8s. per ton. The rise in the 60 east is unproductive, but the lode has a kindiy appearance. It is intended for the rise to drain the winze in the bottom of the 50, and as soon as it is holed will give good ventilation. The rise in the 50, east of King's, is worth 9t. per fm. As stated in our r-port of last week we have communicated the 50 east of Plantation shaft with the 50 west of King's which has well ventilated the mine. The rise in the 50, east of Plantation shaft, and cut were the sasset lode, which is 2 ft. wide, yielding abundance of mundic we purpose driving west on its course to prove it in this direction. The 40, east of lode in the 30 end east is worth 12t, per fathorn. A rise in the back of this levi sworth 12t, per fathorn. A rise in the back of this levi sworth 12t, per fathorn. A rise in the back of this levi sworth 12t, per fathorn. Wm. Rich, Wm. Williams, Henry Abraham, Dec. 10: The

ione in the 30 cent cash is worth 12:. For fatholin.

SOUTH DARREN.—Henry James, Dec. 12: The shaftmen are making fair progress with the work from the 90 to the 100. The bargains throughout are will-but material change from last week, with the exception of the 80 and 90 ends, both of which have improved in value; the 80 end is worth 80. Per fathom, and the 30 end 42. Per fathom. Nothing has been done in the 70 trial cross cut for the week. The weather has set in severe and frosty, in consequence we have been able to do but very little in dressing during the past week.

SOUTH DE EEESBY MOUNTAIN.—Wm. Bennetts, Thos. Bennetts, Dec. 12: There is nothing new in the mine calling for remark since last week's report. We

UITH DE EKESH MOUNTAIN.—Wm. Hennetts, tros. Benne ets nothing new in the mine calling for remark since last week's put the four men who were driving by the side of No I lode to ene-shaft from surface, so as to be in readiness to fix the pumps ime the engine arrives. The water is down in the shaft left. Ted away for a great lentgh, proving that there must have been seen the state of the state

engine-shart from surface, so the water is down in the shaft 16 ft. Inc grounstoped away for a great lentgh, proving that there must have been a good lost of lead.

BOUTH MOLITON CONSOLS,—T. Harris, T. May, Dec. 12: There is not made change in the nature of the ground in the adit cross-cut since we last advised you, but we are meeting with small branches of quartz and mundic, thus showing its ground to be mineralised.

BT. PATRICK.—Wm. Francis, Dec. 11: I am glad to report improved appearances in the cross-course upon which the 120 yard cross cut is being driven notification of the control of the co

I last wrote, ground easy for progress. To sink an winze in the western end of the 24, to six men, at 56, per fathom; lode worth 1 ton per fathom. To cross cut south in the 24, under the 12 winze, to two men, at 110, per fathom; this cross cut is intended to prove the south caunter lode at this level (the 24). To stope the back of the 24 on junction, to 10 men, at 68, per fathom single measure; lode worth on an average 1½ ton per fathom. To drive the 12 west, to two men, at 44. To stope the back of the 12, on main lode, to six men, at 67s. 5d. per fathom single measure; lode improved, worth 12 owts, per fathom. We have about 3 fms. more backs over this to stope, and it is important to get it through as quickly so possible, to enable us to have the accumulated stuff on stulls for dressing. To tram and fill all the stuff in the mise, to four men, at 4s. 3d. per sore skiploads. You will observe that all the above prices are exceedingly low. This fact is owing to the plentifuness and cheapness of labour. Everything at surface is frostbound as the per fathom. The description of the shaft and to prove the lode. The 24 on innetion, to 10 men, at 6s. men and fill all the stuff in the mise, to four men, at 4s. 3d. per fathom; lode worth 20, ton per fathom. The same level to drive east of then ewwinze, east of shaft, to drive by six men, at 5d. 10s. per fathom; lode worth 1½ ton per fathom; lode worth 1½ ton per fathom. No. 3 stope, in back of ditto, by four men, at 5d. 10s. per fathom; worth 13 ton per fathom. The 24 stope that the solution of the shaft and to prove the lode. The 24 on innetion to the western shaft continues to yield 10 cwts. of risk lead of Mountain: The leads were the solution of the shaft and to prove the lode. The 24 on innetion to the solution where the 24, to the western shaft continues to yield 10 cwts. of risk leads and the summarial the summar

8l. 10s. p per ton; No. 2 tri 62 cast, b TAN-1 TEM P next rep

put the c part of t strong, a WEST west of ore. The blende 8/2 shaft, the 130, east fathom,

just as la cut is set Tuesday, snow, so sample 2 WHEA WHE w HEA nearly 11 in the 15 per fathe shaft, in WHEA Hind's, c per fathe King's, i of the 60

CHEN

made m the md; it it, but ed. uck of pitch

10s. per ton; tribute pitch in the bottom of the 74 east, by two men, at 51, 10s. or ton; tribute pitch in back of the 74 east, by two men, at 41. 10s. per ton. 5. 2 tribute pitch, in back of the 74 east, by two men, at 51. 10s. per ton; ditto of cast, by two men, at 44. 10s. per ton. Tan YR-ALIT.—John Davis, Dec. 11: The frost has greatly hindered our reasing operations, but we hope to send away another parcel early next week. he stope in the 13 is improving, yielding over 1 ton per fathom. The stope in

design on the 12 is improving, yielding over 1 ton per fathom. The stope in the stope in the stope, the stope in the stope in the stope. The stope in the stope i

west End Riss North: Line men in this working nave been stoping out the vein going north from the riss following list forchead; they have extra good ore, and are accepted as Drassing operations are almost entirely stopped, owing to frost have accepted as Drassing operations are almost entirely stopped, owing to frost man get in this place. Drassing operations are almost entirely stopped, owing to frost any acceptance of the level, upon which a value may, we hope, be placed when the sext report is prepared.—No. 2: The ground continues hard, and the lode six the bottom of the level, upon which a value may, we hope, be placed when the next report is prepared.—No. 2: The ground continues hard, and the lode as the sext report is prepared.—No. 2: The ground continues hard, and the lode as the sext report is prepared.—No. 2: This ground continues hard, and the lode and before it small quantities.—No. 3: Yery good water, and are brooked in the lode at the lode at the small quantities.—No. 3: Yery good water, and a substance of the lode appears to be widening. We hope to get the distribution in the lode at the side of the winze.

Tol.GUS CONSOLS.—W. C. Virian, Dec. 12: We shall increase correct force in the standing in the lode at the side of the winze.

There is no other change.

The production of the ground being well filled with earthorst of this with water issuing from the forebreats. We calculate to interect our main lode in from 4 to 5 fram. Griving in our present direction, and hope from appearances to find it productive. The ground is moderated early all legislates the stop of the control of the productive. The ground is moderated early all legislates the stop of the set, when we have gone far canough to assure ourselves that they are explosing and the bottom of the mich was a productive to the set.

WEST CHIVERTON.—R. Southey, W. Roberts, J. Moyle, Dec

71. 12s. per ton. Our precipitate of copper weighed 1 ton 8 owts. 1 qr., at 41l. 2s. per ton.

WEST PATELEX BRIDGE.—D. Williams, Dec. 12: Craven Cross Shaft: Having sunk the shaft level with the 50 I have set two pures of men to drive east and west upon the vein. The eastern end is extended 2 fathoms. The ore bearing part of the vein is 18 in. wide, composed of spar, sulphate of baryter, intermixed with good branches of lead ore. The west end is in 1 fm. in a vein 3 ft. wide, and producing patches of lead ore of good quality. The 56 west is extended 135 fathoms, and is now within about 19 fathoms of the shaft. The vein here is 4 ft. wide, and worth for lead ore 20 cwts. per fathom.—No. 2 Shaft: The 20 east has been extended during the month 5 fms. 4 ft., the end being for the last 2 fms. in a guloh, which consists principally of clay, gossan, and solid boulders of lead ore. The 28 east has been extended 3 fathoms 4 feet; the ground here is spare for driving. On surface, owing to the severe frost and snow, we are unable to carry on the surface operations.

oeen extended 3 lathoms 4 feet; the ground here is spare for driving. On surface, owing to the severe frost and snow, we are unable to carry on the surface operations.

WEST ROSKEAR — H. Stephens, W. Bennetts, Dec. 12: The rise above the 36 is communicated with the winze below the 24, and the men have resumed driving the 36 west, where the lode is larger than last reported, and contains more mineral, but not sufficient to value. The men that were sinking the winze below the 24 are now taking away a piece of ground east of Stephen's shaft preparatory to driving a cross cut south to intersect the engine lode west of the junction. We think there will be about 2 fms. to drive at this point. The 24 is improving as it is being extended west—an exceedingly fine lode. The north wall of the lode is reached in Stephens's shaft. We are carrying about 10 ft. of the lode in the shaft; it contains mineral throughout, but the north side is best for copper.

WEST TANKERYILLE,—A. Waters, Dec. 12: The 86 to drive south of shaft, by six men, at 71. per fathom; the lode is 4 ft. wide, but at present not to value. The stope in the back of this level south of winze, by six men, at 41. per fathom; worth 15 cwts, of lead ore per fathom. No. 1 tribute pitch in the back of the 75 touth, by from men, at 52. per ton, less 12. per ton for dressing. No. 2 pitch in the back of the 63 south, by two men, at 40. per ton, less 11. per ton for dressing. The back of the 63 south, by two men, at 41. per ton, less 12. per ton for dressing. The pitch in the back of the 63 south, by two men, at 44. per ton, less 15. per ton, less 16. per ton for dressing. West 17 VR.—8. Herris, Dec. 12: During the past week the risemen have raised 4 ft., leaving 7 ft. of gr.und standing between the rise and the shaft. In the additional content and distinct of the content level we have driven 2 ft.; the lode here is without change. Lam now

just as last reported, yielding 2 tons per fathom.—Richard's Shaft: The 105 crosscut is set to drive to cut the lode. We are preparing for another sampling for next
Tursday. The weather is very severe, and there has been all the week frost and
snow, so that the carriage work is at a standstill. I think we shall be able to
sample 250 tons of about the usual quality.

WHEAL CREBOR.—John Andrews, Dro. 10: There is no change in the mine
worthy of notice since reported on last week,
WHEAL GRENVILLE,—T. Hodge, Dec. 11: Goold's shaft is below the 150
nearly 11 Ims. The flat lode produces occasionally good stones of tin. The lode
in the 150 cast end is worth 6f. per fathom. The lode in the 140 cast is worth 7f.
per fathom. The 130 cast end is worth 8f. per fm. The 140, cast of the western
shaft, is worth 7f. per fathom. No othe. change,
WHEAL UNX—William Rich, Matthew Regers, Dec. 9: The 127 end, west of
Rind's, carries stones of ore. The rise in the 160, west of incline, is worth 160 finds, carries stones of ore. The rise in the 160, west of incline, is worth 160.

Rind's, is unproductive. The 130 end east yields low quality tinstone. The back
of the 60 west is worth 9f. per fathom.

CHEMICALS, MINERALS, AND METALS.— Messts. J. Berger Spence and Co. (Nov. 30)—Alum: Loose lump, 6l. to 6l. 2s. 6d.: ground, 6l. 15s.—Arsenio: Best white powdered, 8l.—Borax: Refined, English, 36l.—Copperas: Green, 58l. 6d.; white, 8l. 7s. 5d.—Copper 1 Sulphate; 18l. fs. to 18l. 10s.—Nitrate of Lead, 3ll. 15s.—Salipetre: Refined English, 36l.—Sulphate of Sinc, 12l. 12s. 6d.—Sulphate of Sinc, 12l. 12s. 6d.—Sulphate; Roll, 4ll. 7s. 6d.; fowers, 10l. 4ll. 7s. 6d.—The crystals, 9d. per lb.—White Lead, 2N. 5s.—Bayyor-Carbonals, 10os.—Brimstone: Best thirds, 4ll. 3s. 6d.—Culos. Company, 10l. 4ll. 2s. 6d.—Culos. Culos. Culos

#### THE VAN MINE-MONTHLY REPORT.

THE VAN MINE—MONTHLY REPORT.

Dec. 11.—The 1:0, west of shaft, is driven 18 fms. by the side of the lode. The 105, west of shaft, is now worth 3 tons of lead ore per cuble fathom. The cross cut north, in the 105 cast, at a point about \$6 fms. east of shaft, is now in a lode worth 1 ton of lead ore per cuble fathom. The 109 fm. winze sinking below this level is down 13½ fms., and worth 2½ tons of lead ore per cuble fathom. The 109 fm. winze sinking below this level is down 13½ fms., and worth 2½ tons of lead ore per cuble fathor. We expect to hole through to the 105 about the end of this week. The rise in the back of the 90 cast is communicated with the winze from the 75, and the men are now completing the timbering. The stopes in the back of the 90, cast and west of shaft (welve in number), are on the average 22ft. wide, and are worth 2½ tons of lead ore per cuble fathom. The 75 west is within 2 fms. driving of Edwards shaft; when this is accomplished we shall cross north to prove the value of the lode. The stopes in the back of the 75 (ten in number) are on the average 15½ ft. wide, and are worth 1 to not lead ore per cuble fathom. The stopes in the back of the 60, cast and west of shaft (nine in number), are on the average 11 ft. wide, and worth 1 ton of lead ore per cuble fathom. The stope in the back of the 60, cast and west of shaft (nine in number), are on the average 11 ft. wide, and worth 1 ton of lead ore per cuble fathom. The stope in the back of the 70. The permanent levels are pushed forward as usual.—Surfade: The machinery is in good working order. Our sale takes place to-morrow upon 500 tons of lead ore and 150 tons of blende.—WM. WILLIAMS.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, Dec. 11: Produce for the month of November, \$2,600 oits.=12,593(.; yield, 6 oits. per ton. All going on well.

DON PEDRO.—Telegram from Rio, dated Dec. 9: Produce for the month of November, \$150,614.

ovember, 2550 oits
ALMADA AND TIRITO CONSOLIDATED,—Telegram from Mr. Clemes;

ALMADA AND THRITO CONSOMINATION.

Fortinght's run at furnace, \$3000.

PLACERVILLE. F. Thomas, Nov. 16: During the past two weeks ending this date the main shaft has been sunk 17 feet, making a total depth of 59 feet. The winze has been sank 7 feet, making a total depth of 59 feet. NEW ZEALAND KAPANGA.—Telegram from the manager, J. Thomas: Since last message the return of gold has been 85 ozs., 45 ozs. of which is from

Extraction Terms to turnes a Stone Stone 1. Compared to part two weeks ending this date the main shaft has been sunk 17 feet, making a total depth of 59 feet. New York has been and 17 feet, making a total depth of 59 feet. New York has been som 17 feet, making a total depth of 59 feet. New York has been som 17 feet, making a total depth of 59 feet. New York york has been som 17 feet, making a total depth in 18 from 18 for some of quarts.

18 for york has been som 17 feet, making a total depth in 18 from 18 for some of quarts.

18 for york has been some of the secretary) writes—"The manager telegraphs us that he has started for the mines. The directors consequently desire me to inform you that crethis resolves you the tunnel will have been commenced."

18 flux FERTS—D. T. Haghes, Nov. 16: 00 the 18th we set off our big blast charged with 505 kegs of powder with a most excellent result. The washing off of this blast will bring us to the western above of the channel at Copher Ravine.

18 flux FERTS—D. T. Haghes, Nov. 10: During the past week operations in the mine have been carried on as usual, and with very good results. The 400 on quartize has been assupeded, and a cross cut started to explore the ground to the contraction of the second of the

this sluice, and if so operations with the machine will be commenced earlier than I anticlipated.

OAPE COPPER.—Capts. Lanksbury and Henwood, Oct. 31: Ookiep: There is no material change to notice in the 22 fathom level. The ground is principally composed of quartz. Our progress has been greatly retarded owing to the scarcity of labourers, and little dependence can be placed on those we have, it being harvest season. In the 80 fm. level, east from No. 24 winze, the ground has somewhat improved since our last report, and is producing a little copper ore; and, looking at the nature of the ground, we feel confident that there will soon be a favourable change. In the 80 fm. level, south from No. 21 winze, the driving is suspended, the ground being very bard and uncongenial for copper ore. The 65 fathom level, east from under new shaft, is still producing good stuff; the present forebreast is worth 3 tons of copper ore per fathom. We think our prospects in this direction are good. The ventilation being very bad in the cross-cut south, in the castern extremity of the 68 fathom level, we have suspended it until communication is made with the now shaft, and put the men to resume the driving of the south level, which is much nearer No. 21 winze.

The stopes in the 69 and 68 fluctuate at times, but on the whole they are yielding well. The ground in the 58 has undergone a change, and has become more favourable for driving, and kindly for copper ore. There is no change to notice in the

er ore. ECTAKEL.—Capts. Henwood and Lanksbury, Oct. 25: The cross cut east, in

NABABEEP MINE.—Capt. Herwoot, Capt. Languagery, Cot. 10: And Record the whim shaft is now completed to the 28 fm. level, and a cross-out-started in a westerly direction towards the vein being driven on in the 28 fm. level; the ground is jointy and favourable for driving, and a few spots of copper pyrites have been found here. In the 28 fm. level north good progress has been made in driving; the vein yields some rich stones of purple copper, but not sufficient to value. We have commenced to sink a winze in the 28 fm. level south-west from shaft; the ground here is of a very kindly nature, and produces about 1 ton of copper over per fathom. The stope in the back of the 17 fm. level is opening out pretty well, and yields about 2 tons of copper ore per fathom.

Returns: For October—Ookiep, 975 tons of 29 per cent.; Spectakel, 46 tons of 33 per cent.; and Nababeep, 24 tons of 24 per cent.—Bills of Lading Received: 380 tons per Ghastone, 340 tons per Amorstie, 700 tons per Glemdai, and 400 tons per Hidalgo.—Arrival at Port Nolloth: The Ocean King.—Arrivals at Swanses: The Argo and Mary Bowen.—Sales of Ora by Public Tender: On Nov. 29, 600 tons, at an average of 11s. 93/2, per unit, realising approximately 4850., and on Dec. 11, 280 tons, at 11s. 7d. per unit, realising approximately 4850.—Dividend Declared 17s. 6d. per share, payable Dec. 24.

PONTGIBAUD.—Dec. 2: RoureMine: The sinking of the engine-shaft below the 175 goes on regularly. The 175 metre level north unproductive. The same level south is no large lode spotted with ore. The 150 metre level north is in a soft lode, yielding stones of orey stuff irregularly. The arms level north is un a soft lode, yielding stones of crey stuff irregularly. The arms level north is unproductive. The 100 cross-cut west will, we hope, be comunicated with the 150 rise this mouth. The 30 metre level south, on Virgenie's lode, is unproductive. The same level north yields a little saving work. The 50 metre level north is the saving work. The 50 metre level north is the saving work.

My ton of ore per current metre. The same level north yields My ton of ore per current metre. We have resumed the driving of the 10 south, on the eastern portion of the lode, which yields but little over. The adit north of Virgine's workings yields a little saving work. The 40 fm. level cross-out, east of Mill shaft, couthines in hard ground, the priches are without change in value—La Brousse.

The 140 metre level, south of Bessett's shaft, yields a little low quality saving work. The rise in the back of this level under the new engine-shaft is in hard sparry rock. The sinking of the shaft below the 1:0 metre level goes on pretty regularly. The under cutting of the lode behind the 120 end south yields a show is the 60 driving between the two parts of the lovel south is unproductive, so more than 150 metre level south yields a little early work. The same level north shows spots of ore. The 10 metre level southly leids 4 ton of ore per current metre. We have of ore. The 70 metre level southly leids 4 ton of ore current metre. We have south open south prices of the lovel of the lovel with the lovel. The 30 metre level south yields 4 ton of ore per current metre. We have south open south prices the lovel south yields 4 ton of ore per current metre. We have south open shad several hindrances from deraugement of the crushing machinery. Our law of the lovel shad have been carried on with regularity excepting at Barbecot, where we have had several hindrances from deraugement of the crushing machinery. Our law of the lovel shad had a lovel to 10 metre level on with regularity excepting at Barbecot, where we have had several hindrances from deraugement of the crushing machinery. Our law of the lovel is yielding 5 tons to the fathom; worth 5 dwts, per ton. The stone had gossan, producing stones of good ore. The lode in the adit level at Villelongue is hard, and of unkindly appearance.

PESTARENA UNITED. Dec. 7: District of Val Topps: In the end south of Zero level, on the cutter of the stone of the stone of the district o

PANT-Y-MWYN.—The late discovery at the Modlyn shaft continues to improve. There are six men at work at the deepest point, where in sinking the lode is now worth 3 tons of ore per fathom. A nice pile of ore taken from this section has accumulated at surface; when they have sunk a few yards deeper additional men will be put on to stope. At Griffith's shaft they are raising rich lead in the 20 fm. level: also stoping roof, which considerably lincreases the value of the reserve. In the 30 yard level east rich ore continues, which is a most important feature, being the deepest point reached. When the engine is erected at the Modlyn shaft to cope with any influx of water this mine can hardly fail to pay cent. per cent. dividends. The old Pant-y-Mwyn east, which is included in the present company's grant, from surface, when a sudden influx of water necessitated their abandoning the works. The present Pant-y-Mwyn Mine is only down about 150 yards as yet. Since the 30th of July 164 tons of ore have been raised, some of it realising 184, a ton. They have a nice pile of potters' ore on the dressing-floors, and also in the bin, which is accumulating for another sale, independent of (sny) 15 tons undressed lying on surface.

RHYD ALYN LEAD MINE, WEAR MOLD.—This veluable proposite. PANT-Y-MWYN. -The late discovery at the Modlyn shaft continues

RHYD ALYN LEAD MINE, NEAR MOLD.—This valuable property is situate to the north of Pant-y-mwyn, in the carboniferous himestone formation, in which the present important discoveries have been made. It is placed between and runs parallel to two of the richest veins formerly wrought, and it is in the western portion of the measures the accumulated vast riches of which have invariably been found to increase in the eastern portion, and as depth is attained. An adit level was undertaken some years ago by the present proprietors (about seven in number) and driven south to the vein about 200 yards, when good for ground was laid open sufficient to pay expenses of operations and to leave a fair profit. Explorations were then undertaken eastward towards the richer portion of the bearing measures, and at 200 yards resulted in an important discovery of ore varying from 1 ft. to 3 ft. wide, and which is now being proved for over 50 yards in length. Into this discovery a sump has been sunk about 12 yards deep, proving the vein rich from the Day level to this depth, with a yield on an average of about 3 ton, to the fathom, and richer in the deepest points seen than above, with, in faict, a continued improvement in sinking. At this depth further exploration is for the moment retarded by the surface water impeding the works, and which will be dealt with here and considerably deeper by the proposed extensive application of water power, from the River Alun passing the mouth of the add level, which also is a most important acquisition for the dressing operations. A rise has also been made on the discovery 20 yards above addit, proving the ore continuous on an average fully 25 tons to the fathom, Bince the Day level has passed this fine run of ore, in a most promising vein, it has again become orey, and there are good indications of continuous farther discoveries, even at this shallow depth. In fact, the future prospective of the parallel which wells, it has gain become orey, and there exist better with a passed the form of the prese

BLUE TENT HYDRAULIC GOLD MINE.—The Nevada Herald has the following:—Another Big Blast.—On Thursday a blast of 650 kegs of powder was fired in the Blue Tent Mine. The result was a the following:—Another Big Blast.—On Thursday a blast of 650 kegs of powder was fired in the Blue Tent Mine. The result was a perfect success, and just precisely what was anticipated by the superintendent. A large point of gravel on the south end of the diggings was lifted and poliverised, ready to be carried off by the water when turned on. Considerable skill is required in running these powder drifts, so as to obtain the full force and effect of the blast, and in this case both the work and the result were as perfect as could be. None but those who have visited and walked over the property of the Blue Sent Company hive may correct idea of its mignitude or value, or of how skilfully and econeuries by the work is carried on. To say that the mine with all its appliances, both inside and outside, is an immense thing is to express it very moderately. A few days ago, in company with some others, we visited it, and were taken all over the ground by Superintendent Hughrs. We never before thad any just appreciation of how extensive and valuable the B us Tent Company's mine is. We venture to say that in extent and richness it is surpassed by no other hydraulin mine in the State. The property consists of about 500 acres of gravel, and the work done on it so far appears but a scratch. Only the edge of the channel has yet been touched, after the richness of it in the main body can only be conjectured. The arrangement for running off the dirt and for awing the gold-are first class, and reflect mind for mining of the dirt and for awing the gold-are first class, and reflect mind the enterprie. In order to judge of it as a whole one must see the long lines of ditches, and the spacious reservoirs constructed on the mountains for the purpose of obtaining a supply of water. To the keen foresight and uniting energy of Superlutendent Hughes may be attributed the excellence of all these things, without making an undue parade of the authority vested in him, bequiety and persistently plans and executes with a view to the aucocess of

#### THE METAL TRADE.

FOR COPPER, TIN, LEAD, &c., apply to-MESSRS, PELLY, BOYLE, AND CO., SWORN METAL BROKERS, ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.

(ESTABLISHED 1849.)

# The Mining Market! Brices of Melals, Ores, &c.

METAL	MARKET-LONDON, DEC. 13, 1878.
IRON. & s. d. & s. d	Tin. £ s. d. £ s. d
Pig. GMB, f.o.b., Clyde., 2 2 91/4-2 2 10	English, ingot, f.o.b 66 0 0
Scotch, all No. 1 2 4 0- 3 5 0	bars 6/ 0 0-
Bars, Weish, f.o.b. Wales 4 17 6- 5 0 0	refined 68 0 0
, in London. 5 7 6- 5 12 6	Anstralian 62 0 0 - 62 5 0
Btafford., ,, 6 10 0- 7 0 0	Ranca (nom.) 64 0 0- 65 0 0
in Tyne or Tees 5 5 9- 5 10 0	Straits 62 0 0- 62 5 0
. Swedish, London 8 15 0- 9 0 0	
Rails, Welsh, at works 4 15 0-	COPPER,
	Tough cake and ingot. 63 0 0-
Bheets, Staff., in London 8 0 0-8 5 0	Best selected 64 0 0
Plates, ship., in London 6 12 6-	Sheets and sheathing. 67 0 0- 67 10 0
Hoops, Staff 7 5 0- 7 10 0	Flat Bottoms 70 0 0- 71 0 0
Mail rods, Staff. in Lon. 6 00-6100	Wallaroo 68 0 0
STEEL.	Burra, or P.C.C 65 10 0- 65 15 0
English, spring	Other brands 62 0 0- 64 0 0
. cast	Chili bars, g.o.b 57 5 0- 57 10 0
Bwedish, keg14 0 0	Риовриов Вномие.
. fag. ham15 0 0	
LEAD.	Bearing metal £105 0
English, pig, common14 15 0	Other alloys £110 0 0- 125 0 0
T. D 15 0 0 15 9 8	BRASS.
W B 18 00	Wire 7 d 7%d
shoot and han 15 19 8	Tubes 7½ - 7½
mine 18 10 0	Sheets 8 - 814
10 10 0 10 0 0	
mutant shot 10 10 0	Nails composition 8 - 81/2
patent and19 10 0-	TIN-PLATES.* per box.
Bpanish	
Metal, per cwt	Charcoal, 1st quality 1 16- 1 2
Metal, per cwt	,, 2nd quality 1 0 0 - 1 1
Ore, 10 per cent. per ton.24 0 0-26 0 0	Coke, 1st quality 0 16 0- 0 16
QUICKSILVER.	,, 2nd quality 0 15 0- 0 16
Flasks of 75 lbs., ware., 6 10 0	Blackper ton 16 0 0- 16 10
BPELTER.	Canada, Staff. or Gla., 11 0 0- 12 0
Bileslan 16 10 0- 16 15 0	
English, Swanses 17 0 0- 17 10 0	
Bheet zine 20 10 0	14 × 10

\* At the works, is. to is. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

\*\*At the works, iz, to li, s. d., per box less for ordinary. Dia per ton less for Canada; IX 6s, per box more than IQ quoted above, and add 6s, for each X. Terne-plates 2s, per box below tin-plates of similar brands.

REMARKS.—When banks fail trade suffers and prices decline. The country gets into a feverish state of slarm, and panic often comes. The failure of the West of England Bank is a terrible blow to that district, but the evil, although more severely felt there than elsewhere, unfortunately is not confined to that part, but spreads throughout the entire kingdom. The bank having been held in high estimation until lately enjoyed general confidence, and, therefore, is likely to have victimised many innocent persons. It is truly grievous to observe one bank after another suspending payment, and chief you account of their having taken up business of such a bid is so no bank has any right to do, and there is no bank has any right to do, and there is no bank has any right to do, and there is no bank has any right to do, and there is no bank after and the plate of the works. If the banks would be useful institutions, and there is no fear/but what they would be profitable concerns: but immediately they depart from the three values would be profitable concerns: but immediately they depart from their established 'principles, and become mere worthy of the name of a bank, and they are almost sure to come to griff over such business. Since the abominable and disgraceful proceedings of the Glasgow Bank have come to light it shows the urgent accessity of placing the banks under restrictions and supervision, and forbidding them to make loans or advances upon the plate of the patient of the patien

make investments, that is quite a different matter, for they can afford to wait, and all who can afford to wait will do well by gradually picking up bargains as they come out.

COPPER.—In the absence of demand, the market has assumed a very quiet appearance, and in order to effect sales sellers have found it necessary to submit to lower prices. The decline has been to the extent of about 20s. per ton both in wrought and unwrought, but the reduction at present has not succeeded in causing any improvement, and probably lower prices will have to be taken before an increased amount of business can be obtained. The market, of course, has been seriously affected by the wretched bank failures, and the prevailing feeling of uncasiness about the position of other banks and merchants generally; and while this feeling of distrust continues there is not much prospect of a change for the better. The fall in the Indian rate of Exchange, and the disinclination on the part of the Indian banks to extend business, is also another reason for the quietude of our market. Quotations must now be considered nominal, as sales ean only be made of very limited quantities; at the same time, prices are brought down to that extremely low point that sellers are driven to accept them from sheer necessity, and not an account of any profit they leave; on the contrary, they return positive losses, hence the reluctance to sell at them; but as no better can at the moment be realised, they are taken merely for the sake of doing something. It is a deplorable state of affairs, when things reach this pitch, but we hope that the patience of sellers will be duly rewarded.

IRON.—There is no change to report in our market, and the unsettled state of commercial affairs generally forbids any sanguine expectations being formed of the immediate future. The demand for all description of iron is extremely dull, and prices still exhibit a declining tendency. Sellers are willing to do almost anything rather than close their works altogether, and hang on in the h

a defining tendency. Senters are willing to do almost anything rather than close their works altogether, and hang on in the hope of pulling up a little by-and-bye. At the present cost of production there is not the slightest doubt that the prices realised leave a positive loss, which is particularly unsatifactory; but this state of things cannot continue much longer, for some of the mills will succumb, or, at any rate, have to stop. This, however, is no more than we expected, for it was plain enough long ago that we were fast drift-

ing into this critical state, and that this month would probably be one of the most trying sever experienced by the trade. It is lamentable to hear the distressing accounts from the various from districts; the people can only obtain partial employment, and that at very reduced wages; in many instances they appear to be aimset in a starving condition, and entirely deprived of suitable food and clothing to make the inclorency of the weather. The wealthy and charitable, if they will control the interest of the pleople will doubtles be very great during the hard winters, but but privations of the pleople will doubtles be very great during the hard winters, but but privations of the pleople will doubtles be very great during the hard winters, but but privations of the pleople will doubtles be very great during the hard winters, but but privations of the pleople will doubtles be very great during the hard winters, but but privations of the pleople will doubtles be very great during the hard winters, but but privations of the pleople will doubtles be very great during the hard winters, but but privations of the pleople will doubtle be very created to be supported to be supported by the property of the property of the pleople will doubtle the property of the pleople wages, or at least against any further reductions, but what advantage would this be to them? It would only recoil upon there wages may be, they are evidently better than going into the Poor house. If a man and the property is the property of the property is the property of the property in the kingdom is held by the mobility of soul by relieving those who can afford it, and if they possess any love for their fellow-creatures they ought to do it, as ithe principal of the property in the kingdom is held by the nobility, to whom the loss of a quarter or half-year's rent would not be felt in the alightest degree; and now that the times are of earlied year's rent would not be felt in the alightest degree; and now that the times and of the property of the trade sh

Members of an opposition should not carry things to an extreme point, or display any ungenerous feeling, but when they see defeat staring them in the face they should retire with good grace, and leave the course fr. e for the triumphal march of their competitors.

In alluding to the contest just now we mentioned its singularity, by which expression we meant to convey that it is principally a fight amongst sellers, and not such as usually takes place between buyers and sellers. This seems to us the most extraordinary and almost unaccountable conduct on the part of the opposition, for after the very severe losses which the sellers must of necessity have sustained by the great reduction which has been perpetually going on in the price for so long a time, we should have thought they would have heartily welcomed any effort put forth to obtain higher prices, but instead of any manifestation of gratitude, what do we find? Why, immediately an operation is begun with a view to secure a more favourable market it is met by the greatest opposition from those whose interests were being advanced, and who ought to have afforded the greatest amount of support. The inconsiderate and hasty manner upon which some people act borders upon insaulty. The same suicidal policy has lately been pursued as that adopted when tin was 581, and which rhymn or reason knoced down to 521. Sellers were then very pressing to get rid of their tin, and as soon as they discontinued unduly pressing the market a rebound took place of about 13. per ton. Seeing the price improve so much after their sales were made, they actually envied those who had relieved them of their burdens, and have ever since sought to have their revenge by trying to arrest the progress of the market, and at one time, through the kind forbearance and pastiveness of the chief makers for her rise, they succeeded in again knocking down the price from 651. to 591, or 61, per ton, precisely the same difference as occurred at the previous "bearing." Now as the last rebound was to the e

trade in a more prosperous condition. The mining counties have suffered immensely for some time past, but we rebuked them for over supplying the market, and did not hesitate to point out the depreciation if such a course were persisted in, and it will again happen if they depart from the moderation and prudence they are now observing. A scarcity, however, is as great, if not a greater, evil than a plethora, but with the present stock there is no fear of consumers suffering inconvenience from the former, at the same time they must be prepared to pay dearer prices; but a few pounds advance upon current rates is not of any serious consequence to consumers, for until recently they have been accustomed to give very considerably higher rates than those now ruling, but we caution them once more not to expect too much includence from holders, for they will have to push prices well up to recoup their former losses, and buyers must not be surprised if sellers make the best use of the time in their favour.

QUICKSILVER is unchanged in price, but the demand continues alack, and the stocks are believed to be very large. The first shipment of the new season has arrived—1502 flasks.

LEAD continues flat, but without change in value.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday evening.
The Glasgow market for Scotch pig-iron was flat in the early part of the week, consequent on the fallure of the West of England Bank. Yesterday morning the market was firm, warrants being scarce; in the afternoon the market was weaker, closing at 42s. 10d. buyers. This morning business was done at 42s. 9½d. c. and the afternoon at 42s. 11d. closing—sellers, 43s.; buyers, 42s. 11½d. cash, a fall this week of 2d. per ton. In makers' iron there is little change. We guote No. 1 Gartsherrie, 80s.; Coltness, 51s. 6d.; Caider, 61s. 6d.; Langloan, 52s.; 1

Summerlee, 48s. 6d.; Monkland, 44s. 6d. f.o.b. Glasgow; Glengarnock, 48s.; Eglinton, 44s. f.o.b. Ardrosan: Shotts, 51s. 6d. f.o.b. L-ith. The failure of the West of England and South Wales Bank has necessarily caused much comment in the iron trade, having taken ironmasters in other districts by surprise. It was first looked upon very seriously, but the help afforded by the National Provincial Bank of 50 per cent, to all depositors has created a better feeling, under the impression that the liquidation will be effected without great inconvenience to the shareholders, and as the depositors will all be paid in full the effects of the suspension have begun to disappear even in the West of England. We have had a very quiet business in iron here this week.

Sheet iron is the kind most in demand, and galvanising iron is most enquired for in this department. The works in the country are generally short of orders. Lowmoor, however, and the Earl of Dudley's at Hound Oak are exonism, both these noted works being well off for orders and working full time. Poreign competitors still invade the English market, supplying German wire rode to Birmingham and Warrington at lower prices than we can make them in Shropshire and the Forest of Dean. The Belgian ironmasters continued also to take the foreign orders for nail rods; and the London demand for Channell iron, girder iron, angle iron, tees, and common bars for building purposes is almost invariably taken now by Belgian ironmasters on the banks of the Meuse and other districts in that ountry. The new law on weights and measures comes late operation on Jan. 1 next, and now the only course for the iron trade to adopt is to reckon up the number of pounds of iron made by the puddler, then divide it into the new ton and afterwards see how many old tons of 2400 lbs. there is in it, and then say, or so many lots of 2400 lbs., and reckon the price accordingly at the old rate. This course, we believe, will be adopted from Jan. 1 by the leading Staffordshire house.

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Messrs. RICKARDS and BUDD-COPPER: Outlie worse, mainly owing to the indisposition of					
English copper, wrought and unwr Tons	21,228		20.714		87 09+
Yellow metal	11,576	******	15,923	******	13,748
Total exports	48,727	•••••	49,933	******	53,442
Copper in ores	10.364		13,500		10 000
Ditto, regulus and precipitate	14,193		16.979	*****	10 05 -
Ditto, bars, cakes, and ingots	35.941	******	37 255	*****	10,306
In pyrites (estimated)	19 194	******	15 000	*****	37,385
In pyrices (estimated)	12,104	******			
Total imports	72,692		83,742		81 358

Total..... ..... 11,996 ...... 9,333 .... 9.867

Mesers, Vivian, Younger, and Bonderders.

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At the Swansea Ticketing, on Tuesday, 1916 tons of copper ore were sold, realising 10,905. 11s. 6d. The particulars of the sale were—Average standard for 9 per cent. produce, 77l. 11s.; average produce, 10\frac{2}{3}; average price per ton, 5l. 13s. 10d.; quantity of fine copper, 204 tons 11 cwts. The following are the particulars of the two leaf collections.

2.1 33. 6d., and in the price per ton of ore about 5s. 8d. Messrs. Richardson and Co. report that the Union ore gave a produce of 9 13-16 per cent., and sold at 10s. 6d. per unit.; Caveira, produce 7 15-16, per unit 10s. 1\frac{1}{2}d.; Berehaven, produce 9\frac{8}{5}, per unit 11s. 2\frac{1}{3}d. There will be no selection. sale on Dec. 24.

A rather serious decline in the tin standards for ore and the failure of a bank having several branches in the mining districts (rumours in regard to which were very rife at our last) have not tended to in regard to which were very rife at our last) have not tended to improve the Mining Share Market this week. It opened flat in consequence, and has continued so to the end. The dealers have been chiefly occupied in the settlement of the fortnightly account, but it was comparatively of very small amount.

Tin.—There have been rumours of large consignments of tin coming over as ballast in the wool ships from Australia, and merely upon this, it is said, the Cornish smelters put down the standards for any 3, part ten last Saturdary thus postralizing the good effects

upon this, it is said, the Cornish smelters put down the standards for ore 3t. per ton last Saturday, thus neutralising the good effects of the previous advance, and causing renewed discouragement and distrust just as confidence was being restored. Shares, we need hardly say after this, are all weaker, and the quotations merely nominal.

nominal. At Levant meeting the accounts showed a loss of 1339l, on three months' working, and a balance against the mine of 3300l. A call of 10s, per share was made. The tin sold was 65 tons, against 74 tons in the previous quarter. At South Roskear meeting, held at Glagow, the accounts showed a loss on four months' working of 259ll, and a call of 1l. per share made. The returns of tin, copper, and blende, were 672l. Carn Brea, 32 to 34; Cook's Kitchen, 1 to 1½; Dolcoath, 28 to 30; East Pool, 9 to 9½; Penstruthal, ½ to ½; South Condurrow, 10½ to 10½; South Frances, 6½ to 7; Tineroft, 7 to 8; West Basset, 2½ to 3; West Frances, 3 to 3½; Wheal Peevor, 6 to 6½; Wheal Uny, ½ to ½.

West Basset, 2½ to 3; west Frances, 3 to 3; which west Frances, 3 to 3; which west Frances, 3 to 3; which west Frances, 4 to 5; which west frances, 5 to 5; which we start from the second section of the second sec

for dues is 732l. 0s. 9d.. and the meeting is to take into consideration the action of the lord's agent in pressing at this time for payment. Penhalls, 1½ to 1½; Wheal Agar, 4½ to 4½.

In Copper Mines there is no change, and searcely any business doing. Prices nominal. Devon Great Consols, 1½ to 1½. Parys Mountain, 7s. to 8s.; according to the agent's report the 90 south looks very promising. Morfa Du, 17s. 6d. to 20s.; shipments of bluestone have commenced. Marke Valley, 15s. to 20s.; West Seton, 6 to 8; West Tolgus. 38 to 40.

looks very promising. Moria Dd., 178. od. to 203.; West bluestone have commenced. Marke Valley, 153. to 203.; West Seton, 6 to 8; West Tolgus, 38 to 40.

LEAD MINES for the time are as dull as others, and our quotations are merely nominal. Van, 18 to 19; the monthly sale realised —Lead, 500 tons, 5077l. 10s.; blende, 150 tons, 386l. 5s. Roman Gravels, 6½ to 6½; no particular change has taken place here. Tankervilles are flat at 2½ to 3. East Van, 2 to 2½. Glenroy, 10s. to 15s.; the lode in the shaft is 4 to 5 ft. wide, with a little more spar and blende.

FOREIGN 24 to 3; Col 21 to 28. Col dividend of the 24th. chequer, 33. Kapanga, 1 been 85 ozs paso, 2s. to St. John del South Auro The Mark

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encouragin good resul low grade the 500, as very good car of 120 ft., and machinery a brought to a c sheet-iron ro are ready for the boilers. ch from P The Ida

property— dend was p total distr England in Last Cha of machine iding a Utah as I property b and Watkins In width, an gold, silver, a tween the tw in depth, con tance of 250 900 ft. in leng shaft at a de on the vein. with increasi mine of 625 ft has been run about 475 ft.

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naturally liplace in ot 18 to 19; of the Jou The usual and 150 to 21; 2‡; no free frost is set of dressing o present in us counts conting the ment at seve manager has working with ruling for bor of whom are ton of dresses other pitches as to work at Caron, 2 to of lead and a for a first as having bear

winion, 1½ to 2½; Hartington Moor, 1½ to 2; Mawston, 50 to 55; Red Rock, 2 to 2½; West Wye Valley, 1½ to 2; Wye Valley, 1¾ to apital indeation of further improvement at yet deeper workings. The mine rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the improvements reported at the late rever looked better. Red Rock, 2 to 2½; the second at large extent of good stoping ground is being opened out in the bottom levels, both in the eastern and western daylone over the previous parcel, and that, again, was an increase upon the price for the late with the late of the late with the late with the late indication of further improvement at yet deeper workings. The mine apital indeation of further improvement at yet deeper workings. The mine apital indeation of further improvement at yet deeper workings. The mine apital indeation of further improvement at yet deeper workings. The mine apital indeation of further improvement at yet deeper workings. The mine apital indeation of further improvement at yet deeper workings. The mine apital indeation of further improvement at yet deeper workings. The mine apital indeation of further improvement at yet deeper workings. The mine apital indeation of turther improvements reported at the late was apital indeation of turther improvements reported at t South Aurora, 1 to 3.

The Market for Mine Shares on the Stock Exchange has been very inanimate, partly owing to much attention having been occupied by the settlement and partly through the temporary improvement in the metal markets having been lost. The Bunk of England weekly return is the most unfavourable for some time. Metals of all descriptions are quoted lower; the standard for tin ores has declined 31, and tin metal is 11, to 21, per ton lower; copper is 11, worse; and lead cannot be sold except at a decline. It had been hoped that the Van sa'e would have shown some improvement, as lead was stated by some to be better; as a matter of fact, however, the prices realised at the sale yesterday averaged only 10. 3s. 1d. for lead, against 10. 3s. 91. last month, whilst the blende only averaged 2. 11s. 6d., against 21. 11s. 9d. last month. The rumoured submission of the Ameer of Afghanistan is referred to this afternoon as likely to lead to an improvement, but it must be admitted The Market for Mine Shares on the Stock Exchange has been very gammission of the Allies of Allies and the Allies of the A Indian affairs upon English business would scarcely be able to find Afghanistan on a map of Asia and connect the assumption of the tile of Empress with the cause of the war, ignoring the fact that her Majesty was proclaimed Empress of India on Nov. I, 1855, or rather more than twenty years ago. If, however, the attention which the war has attracted to India in general have the effect of promoting the development of its vast mineral resources, the war will be amply compensated, for there can be little doubt that had as much capital been sent to the mines of India as has been squandered in United States mines by English capitalists there would have been fewer compaints of the loss of both capital and interest. The only mining transactions on the Stock Exchange to day have been in West Chiverton at 1½, in Colorato United at 2, and in Richmond at 10½. The Cape Copper Company has declared a dividend of 17s, 6d. per share. nd in Richmond at 10%. The Cape Copper Company has declared a dividend of in 6d. per share. In referring to the assertion that Mr. Norman Lockyer was alleged

In referring to the assertion that Mr. Norman Lockyer was alleged to have discovered the method of transmuting metals, it was stated that all that was really proved by the experiments which he had made was that a solution of electrically volatilised copper does not give the same lines in the spectroscope as a solution of copper not streated, and it is evident, from his paper read before the Royal Society on Thursday evening, that this is all he claims to have done—it is the officiousness of his friends that led to the absurd announcements which have been made. Mr. Lockyer has, it appears, made about 100,000 spectroscopic observations and taken some 2000 photographs in the course of his researches, and from these he has arrived at the conclusion that "the hypothesis that identical lines in different spectra are due to impurities is not sufficient." Before reliable hypotheses can be bused on spectroscopic observation there illustry of the spectroscope under all circumstances must be proved, and the conclusions which Mr. Lockyer has found unfamiliar lines in the spectra of copper, nickel, and so on, that these metals are necessarily compounds: he must prove that these unfamiliar lines are always seen in the spectra of copper, nickel, and so on, as the variation of spectra may be due to an undiscovered associated metal. In fact, the discoveries of cadmium with zinc and thallium with another metal would be corresponding discoveries—thallium by practically the same process, though subsequently otherwise confirmed. Mr. Lockyer has put on record a vast amount of useful observations, but has wisely left the conclusions to be drawn from them to be hereafter determined. If shareholders in gas companies had little to fear a month ago, they have less at present, for every fact that came to light with regard to electric illumination is adverse to it. The Reynier lamp is, like the Wardsymann, of no practical utility as a non ambli vision

they have less at present, for every fact that came to light with regard to electric illumination is adverse to it. The Reynier lamp is, like the Werdermann, of no ptactical utility, as upon subdivision of the light its power is annihilated. The attempt to produce light for illumination by incandescence costs ten times as much as by the voltate are; and in reporting on the Reynier lamp Fontaine, of Paris, shows that a current which with the Serrin lamp yields 320 uoits of light (bess Carcel) will only yield 50 units in the aggregate when used in five Reynier lamps, and outy 50 units in the 32 gregate when used in 10 Reynier lamps. It has been stated that when the 10 Werdermann lamps are in use on one circuit only 8.5 c undles light is yielded by each; but this is, perhaps, an exageration of its inntility. The new Elison light is described as an iridio platinum incandescence lamp, and is, therefore, 25 years old, and would be less effective than even Reynier's and Wordermann's. An article on the Reynier lamp, in another column, may be interesting.

Richmond, 10\frac{1}{2}\text{ to Provember 20, is encouraging. The mine has been carried on as usual, and with yery

Richmond, 10½ to 11; the report from the mine, November 20, is encouraging. The mine has been carried on as usual, and with very good results. The rise in the back of the 500 is now up 3½ feet in low grade ore. A drift has been started from the rise 85 feet above the 500, and extended 27 feet in good ore. The present end is in very good carbonate ore; this ore body has now been explored to a total depth of 120 ft., and has laid open a large body of ore. The air compressor and other machinery are working smoothly. The reconstruction of the works is being brought to a close; the building is completed with the exception of the orrugated heet-iron roofing, which they expect during the week. The two new furnaces are ready for work. The machinery is in place, and they are now overhauling the bollers. Everything will be ready by December 1 except flue, which cannot reach from Pittsburgh before Dec. 10. They expected to start about Dec. 15, so a telegram to that effect may be expected during next week.

The Idaho Mine, of Grass Valley, California—a gold-producing property—yielded in gold in October \$47,000. The monthly dividend was paid as usual. This dividend is numbered 111, making a total distribution of \$2,510,000. This mine was offered for sale in England in 1870 for 20,000.

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dend was paid as usual. This dividend is numbered 111, making a total distribution of \$2,510,000. This mine was offered for sale in England in 1870 for 20,000%.

Last Chance, ½ to ¾; work is suspended for the winter for want of machinery, but it is intended to resume in the spring, when the winding and pumping work will be erected. The mine known in Utah as Last Chance embraces not only the London company's property but the adjoining property, belonging to Messrs. Tiernan and Watkins, of Salt Lake City, which contains 2400 linear feet in length by 200 ft. in width, and since it was located in 1870 has yielded about \$1,000,000 worth of gold, silver, and lead. The discovery claim of this mine is the dividing line between the two properties. The mine is opened at the discovery by a shaft 450 ft. in depth, connecting with a tunnel run from the side of the mountain for a distance of 250 ft.; intersecting the shaft at the depth of 225 ft. another tunnel, 900 ft. in length, runs from the base of the mountain, connecting with the main shaft at a depth of 450 ft. From this tunnel level drifts have be nr run of 100 ft. on the vein. A winze is run down on the footwall to a depth of 175 ft., all in ore, with increasing richness as depth is attained. This makes a total depth on the lase been run from the base of the mountain a distance of 800 ft., where the lode was cut and found to be 40 ft. in width. From this point to the surface would be effected to the surface where are several inclines and shafts, with a number of cross cuts, all showing a strong, well defined lode, varying in width from 25 to 50 ft. The first plan is mine has assayed up in the hundreds in gold and silver. The general average of all the shipments was something over \$100 per ton.

Placerville, 2½ to 2½; the sinking of the shaft and winze is steadily pushed on. In the first fortnight of November the shaft had been and the Hydraulic or Gold Washing sharges remain unchanced.

Placeville,  $2\frac{1}{8}$  to  $2\frac{3}{8}$ ; the sinking of the shaft and winze is steadily pushed on. In the first fortnight of November the shaft had been sunk 17 ft. and the winze 7 ft., the latter going down still in a fine lode. Hydraulic or Gold Washing shares remain unchanged. Blue Tent,  $2\frac{3}{8}$  to 3; the superintendent's report in another column, as well as an extract reproduced from a local paper, speaks of a blast of 650 kegs of power exploded with excellent results. This prepares a very large quantity of gravel for washing, and as some good rains have lately fallen, it is expected that work will shortly be recommenced.

Hultafall, 3 to  $3\frac{1}{2}$ ; the last report from the mine is said to be satisfactory, and the dressing of the lead and blende a success.

Lead Mine shares have received very little attention, and have naturally been adversely affected by the decline which has taken place in other markets. Quotations are altogether nominal. Van, 18 to 19; the usual monthly report appears in another column of the Journal. There is but little change recorded at the mine. The usual four weeks sale took place on Thursday—500 tons of lead and 150 tons of blende, and realised 5463. 15s. Grog winion,  $1\frac{3}{2}$  to  $2\frac{3}{2}$ ; no fresh news from the mine since last report, except that the frost is severe in this part of Wales, and will to some extent hinder dressing operations. Frongoch,  $2\frac{3}{2}$  to  $2\frac{3}{2}$ ; steam—power being at present in use at this mine the weather does not affect the works. Capital acceptance in the same of the sa

portions of the mine. The price obtained for the last sale of ore showed a slight advance over the previous parcel, and that, again, was an increase upon the price of the one preceding it.

Wye Valley, 1½ to 2½; the mine continues to improve in the bottom level in a very satisfactory manner. Forty tons of lead were sold on Monday, at 9½. 1s. per ton. West Wye Valley, 1½ to 2; the proposed issue of debentures has, it is said, been well entertained. Pant-y-Mwyn, 3½ to 3½; the vein at the Modlyn shaft, which was interescede a few weeks ago, is now worth about 3 tons to the fathom. Operations are being carried on with vigour and energy, and the ore is rapidly accumulating for another sale. Rhyd Alyn shares are quoted at 45 to 45, and is about to be registered as a limited liability company.

Mineral Corporation of Great Britain, 10 to 11; the report of the manager on the Hafna Mine continues satisfactory. The lode in the end of No. 1 adit is 4 the wide, composed of gossan, carbonate of lead, and sulphur mundio. This is considered to be about as favourable an indication for a perm nent lead deposit as could be desired, and Capt. Bennetts describes it as a beautiful looking lode. They are now stoping in this district upon terms which will leave good profits. No. 1 stope, worth 15 cwts. of lead par fathom, is set at 55s. per fathom, 4 fms. stent. This should give 3 tons of lead for the 4 fms., at (say) 8½, per ton, or 24½, while the cost of breaking is 11½, leaving 13½, for dressing and getting to market and profits, so that the latter item should be large. No. 2 stope, worth 20 cwts. to the fathom, is set at 60s. for 5 fathoms stent, so that at the same rate there would be about 35 fms. given and the same rate there would be about 35 fms. Market the state item should be large. No. 2 stope, worth 20 cwts. to the fathom, is set at 60s. for 5 fathoms stent, so that at the same rate there would be about 35 fms. west of the present end, and one of the last men who worked therein tells him that there is a good lode of lead

mand. A correspondent writes that "among the snareholders there appears to be a firm determination to have a considerable reduction made in the heavy expenditure at these mines, not only by the lessening of unnecessary hands and reduction of wages throughout, but in the management generally, as set forth in Mr. Stewart's letter, published in the Journal of last week. There can be no question that the shareholders' urgent wishes should have the immediate attention of those in authority to see that the reduction shall be carried out in view of the present great depression and the carried out, in view of the present great depression and the monthly loss."

Subjoined are the closing quotations:—
Assheton, ½ to 1; Devon Great Consols, 1½ to 1½; East Caradon, ½ to ½;
to 1½ to 1½ to 1½; Glenroy, ½ to ½; Great Laxey, 17½ to 18½; Leadhills, 1½
to 2½; Marke Valley, ¾ to 1; Parys Mountain, ¾ to ½; Pateley Bridge, 2½
to 3; Penstruthal, 1-16ths to 3-16ths; Roman Gravels, 6½ to 6½; Tankerville,
2½ to 3½; Timcroft, 7 to 9; Van, 17 to 19; West Chiverton, 1½ to 2; West
Pateley, 1½ to 2½; Wheal Grenville, 2 to 3; Almada and Tirito, ½ to 3½; Bider
Greek, ½ to ½; Bider Tent, 2½ to 3; Cape Copper, 29½ to 30½; Cedar
Greek, 1-16ths to 3-16ths; Chontales, ½ to ½; Colorado United, 1½ to 2; Don
Pedro, ¾ to ½; Eberhardt and Aurora, 3½ to 3½; Exchequer, ½ to ½; Flagstaff, ½ to ½; Ferbrard and Aurora, 3½ to 3½; Exchequer, ½ to ½; javali,
4s. to 4; Kapanga, ¾ to ½; Estar Chance, ½ to ½; New Quebrada, 1½ to 1½;
Oregon Preference, 1 to 1½; Pestarena, 2s. 6d. to 3s. 6d.; Placerville, 2½ to 2½;
Pilumas Eureka, 2½; 20; 2½; Port Phillip, 8s. to 11s.; Richmond Consolidated, 1½
to ½; Setzerka, 2½; 20; 25; Fort Phillip, 8s. to 11s.; Richmond Consolidated, 1½
to ½; Cedured, 2½ to 3½. Subjoined are the closing quotations:—

COLLIERIES.—Business in these shares is very dull, or perhaps it would be more correct to say utterly stagnant. It is true that the condition of the coal trade of the country is decidedly bad, but it condition of the coal trade of the country is decidedly bad, but it might be worse, and it is not only quite as good as that of many other branches of trade, but gives far greater promise of early reaction. There is no want of demand for fuel either at home or abroad, and when it is found that the week's export of coal from our chief ports reached 264,522 tons (about 54,000 tons above the previous week), it must be evident that no stocks of coal are accumulating. On the other hand, though a few good collieries are even now making fair profits, the general prices of fuel are ruinously low, and hence it is not so much a lack of business as a want of fair profits of which coal producers have to complain. So long, however, as stocks are kept down by the combined demands of home and foreign customers a slight improvement in general trade would immediately reflect favourably on the coal trade. We are sorry to note that the resolution for winding up the Chatterley Iron Company has been confirmed, the cause of the failure appearing to be due to the purchases of large works without providing sufficient capital to carry them on. So closely are the coal and iron trades of this country related that the failure of a large concern like this cann t fail to be a source of regret to all interested in colliery matters. It is satisfactory to learn that the large new engines at Chapel House Colliery are now in full working, and are raising about 100 tons of coal per day from the Park seam. This is a considerable addition to the previous raisings, and is the more encouraging inasmuch as it is only the beginning of a very large increase in the company's output. Prices on the share market remain quiet, Chapel House at 3 to 33; Cardiff and Swanses, 3/4 to 1; Newport Abercarn, 4 to 4/4; Thorp's Gawber, 1/4 to 2; Altami, 3 to 3/4; New Sharlston, 3 to 4.

With this week's Journal a SUPPLEMENTAL SHEET is given With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: Miners' National Relief Fund (Ellis Lever); Boller Explosions (Henry Heller); On Consumption of Fuel in Mining Engines; Chontales Mining Company (W. B. Palmer); American Iron (Fe) Ore: Progress in Canada—the National Policy; Investments in Foreign Mining; Ore-Dressing Machinery (G. W. Baker); Finance, Manufacture, and British Mining (R. Trelinnick and Co.); A Contract—or which Pays Best?; the Great Northern Raliway (W. J. Thompson); Rock-drilling Machinery (Hathom and Co., W. Thompson, G. Cook); Rock-drills and Air-Compressors; Devon Silver-lead Mine (W. Salmon); Devon Great Concols; Gold in Wales—the Clogau Mine; Cardiganshire Mines-Central Division; the Rockhope Lead Mining Company (Limited)—the Scotch Mining Share Market—Registration of New Companies—Foreign Mining and Metalluray—The Wild Duck; or, Sportman's Arms—Meetings of New Quebrada, Bowing's Patent Fitter Press, Glyn, Emma, and St. John del Rey companies, &c.

GREAT SALES OF COPPER IN LONDON.—Copper, like most other things, has within the past few months been very much depressed. The directors of the great Wallaroo Company a few week ago found it necessary to close one of their principal workings, for the simple reason that the imports into England were unremunerative, and entailed many vexatious disappointments at the auctions. Within the past fortnight some very important movements have taken place, which will rule the whole of the copper trade and its various branches which will rule the whole of the copper trade and its various branches throughout the country until the early spring. The result of public sales would appear to place Wallaroo at 67. 16s. 9d. per ton. Deer Brothers' ingots have been placed at 63. 15s.; Burra ingots and plates have been withdrawn at 65. 10s., a 'material advance on that quotation being demanded. The stocks at the commencement of the present year were—in England 30,031 tons, in France 8917 tons—making a grand total of 38,948 tons. About 3000 tons of Corocoro Barilla, in Havre, have been sold to the French smelters. The market in London is quiet; g.o.b. Chili bars are quoted at 58. 10s. spot. Messrs. James and Shakespear, of Liverpool and London, offered some 578 tons of Wallaroo copper in cakes, and the following was in London is quiet; g.o.b. Chili bars are quoted at 584. 10s. spot. Messrs. James and Shakespear, of Liverpool and London, offered some 578 tons of Wallaroo copper in cakes, and the following was the course of the bidding;—Copper per City of Agra opened at 634. 10s. per ton, advanced 12s. 6d., 15s., 17s. 6d., and was finally knocked down at 66l., the lot being about ten cakes. Messrs. Merton were the buyers. Then followed nine lots, in about 10 tons cakes, to the same buyers, at 66l. 17s. 6d., the price having been run up in gradations of 2s. 6d. from 66l. 2s. 6d. to that figure. The next start was at 66l. 17s. 6d., the last bid, when an advance to 67l. occurred, and then the price was forced up by half-crowns to 67l. 7s. 6d. The next try, at a lot of 10 tons cakes, was at 67l., finishing at 67l. 7s, 7d. The next was at 67l., and here the improved tone of the copper market as erted itself. Messrs. Brandies were buyers of some 30 tons of cakes, at 68l., and Messrs. Wolff took a lot of 10 tons at the same price. There was some sharp competition over lot 20, consisting of about 7 tons cakes, which started at 66l. 17s. 61., and ultimately fell to Messrs. Merton, at 67l. 15s.; as did also lot 21 of 10 tons. Lot 22 went at 68l.; then the next two lots, of 10 tons each, fell back to 67l. 17s. 6d. Mr. Sargeant was the next purchaser at 67l. 17s. 6d.; then followed Messrs. Brandies and Messrs. Merton at 68l., and then Messrs. Merton bought very heavily at 63l. 2s. 6d. Messrs. Gallimore took lot 55, at 63l. 10s.; and Messrs. Merton obought very heavily at 63l. 2s. 6d. Messrs. Gallimore took lot 55, at 63l. 10s.; and Messrs. Merton bought very heavily at 63l. 2s. 6d. Messrs. Gallimore took lot 55, at 63l. 10s.; and Messrs. Merton brought a very successful sale to a close by taking the last lots of about 31 tons at 63l. 7s. 6d.

Pontgibaud Silver-Lead Mining and Smelting.—At the ordinary general meeting held in Paris, on Nov. 30, the reports and accounts for the year ending June 30, 1878, were received and approved. The profit on the mines and smelting works had amounted to 19,410%, 13s. 1d., adding to which 2582%, 5s. 11d. for interest and discount, and 4103%, 15s. 6d. profit on securities realised, the total gross profit was 26,796%, 14s. 6d. The various sums written off plant, &c., and the royalties and estimated loss on stocks of purchased ore absorbed 937%, 10s. 10d., leaving the sum of 17,425%, 3s. 8d. as the net profit of the year. The dividend for the year was fixed at 40 frs., of which 15 frs. was paid on account in June, and the balance of 25 frs. (or 19s. 9d.) per share is now in course of payment at the offices of Messrs. John Taylor and Sons. The report of Messrs.

John and Richard Taylor, the engineers in chief of the company, alluded to a falling off since June in the discoveries of ore in two of the mines, but stated that very satisfactory results had been obtained at the smelting works. The low prices of lead and silver-lead much affected the company's profits.

MAWSTON LEAD MINING COMPANY, -At an extraordinary meet-MAWSTON LEAD MINING COMPANY,—At an extraordinary meeting of shareholders, held on Dec. 2, it was resolved to divide the existing 24 shares, of 50% each, into 1200 shares of 1% each, and to increase the capital to 1800%, by the issue of 600 new shares of 1% each. The manager reported that the 22, between Wendley Hill and Mawston shafts were now driven about 110 fathoms, and that good ore had been passed through in several places, which is steadily improving, and that the prospects are considered very good.

HABLUGGON MOOR LEAD MANING COMPANY At a category.

HARTINGTON MOOR LEAD MINING COMPANY.—At an extra-ordinary meeting of shareholders, held on Dec. 2, it was resolved to increase the capital of the company from 600% to 1200%, by the issue of 600 new shares of 1% each. The manager reported that the main engine-shaft was down 24 fathoms, and that other works were progressing estificatorily. progressing satisfactorily.

LEAD MINES—LEAD SMELTERS.—We stated last week, from information received from a reliable source, that the price of lead had advanced in America. We have heard this week from the United States that lead a few months ago was selling at about 14% to 14% 10s., and that such a great demand has there set in, the price has advanced to 16%, 16%, 10s. per ton. We shall, no doubt, see a much better price for English lead and ores. We hear that one or two new smelting firms are in course of formation. The general impression is that the lead smelters can well afford to give at the very least 1% to 1% 10s, per ton more for lead ore than they are now doing. Any new smelting firms now coming into the market are sure to realise handsome profits.

ISABELLE GOLD AND SILVER MINING COMPANY.—The following memorandum, dated Dec. 12, has been issued:—"The manager telegraphs us that he has started for mines. The directors consequently desire to inform the shareholders that ere this the tunnel will have

A LARGE MAKE OF BESSEMER STEEL.—We understand that at the Bessemer Steelworks recently erected by Messrs. Tannett, Walker, and Co., of Leeds, for the Rhymney Iron Company (Limited), Rhymney, under the superintendence of Mr. Laybourne, the company made during last week (working ordinary shifts) the large quantity of 1247l. tons of steel. The company can make with ease week after week about 1100 tons with two converters.

Accidents in Coal Mines.—Prof. Ansted, F.R.S., in a lecture on the subject of "Accidents in Coal Mines," said that a great many of the so-called "accidents" occuring in mines might be prevented by proper supervision; and there was no doubt that, in this respect there was a great improvement on the state of things which existed a few years ago. It was he admitted utterly impossible to do away with all accidents and calamities. Where a large number of men were employed within a small area at the same time; where there was elaborate machinery throughout a great mine, often extending for 1000 acres, and worked in galleries extending, perhaps, for miles where frequently 500 or 600 men have to go up or down the great shafts of the mine, and thus, during their passage, preventing the where frequently 500 or 600 men have to go up or down the great shafts of the mine, and thus, during their passage, preventing the free rush of fresh air throughout the works, it was not to be wondered at that accidents should occur. Then, besides, the shafts were used for bringing up the coal. The whole of these operations, Prof. Ansted remarked, should be carried on under the most unceasing vigilance and the most constant care. The chains might break, or something else happen to the machinery; indeel. very few days passed without something wrong occurring in connection with the mechanical arrangements; and it was well known to those acquainted with the working of mines that a number of human lives were annually lost in this way. Prof. Ansted pointed to the fact as a cheering one, that although the consumption of coal had enormously increased during recent years, the number of accidents had by no means increased in proportion. He hoped, in conclusion, that the time would shortly arrive when, putting the present method of lighting coal mines aside, the electric light would be brought into requisition, and a boon conferred upon the poor miner by giving requisition, and a boon conferred upon the poor miner by giving him a sufficient light while engaged at and removing the dangers connected with his avocation.

Ditt,—Mr. Thomas Braban Ross, aged 36; engineer, Sheep-bridge Ironworks, Chesterfield. Formerly of Gateshead. His esti-mable qualities endeared him to all who knew him, and he is deeply

# ZINC ORES.

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#### Notices to Correspondents.

\* Much inconvenience having arisen in consequence of several of the Numb daring the past year being out of print, we recommend that the Journal shows filed on receipt; it then forms an accumulating useful work of reference.

Received,—"Bristo": We could not allow a discussion upon such a subject to commence—where would it end?—"J. B. R."—"E. L."—"W. W."—"P. E. N."—" Hambler" (Old Treburgett)—"W. H. G." (Market Harborough): See reply to "Bristo"—"Shareholder" (South Condurrow)—"Constant Reader" (Belfast)—" Perplexity" (South de Eresby): We have forwarded your letter to Mr. Mariborough—"Shareholder" (Pandora)—"O. H. S."—"H. S." (Wolverhampton): Full information will appear in the Journal as soon as proceedings are taken—"G. W."

taken—"G. W."

IMPORTANT NOTICE—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."—In consequence of the new Postal Convention, which came into operation on July 1, the postage of the Mining Journal to many countries will be reduced to one fourth. Henceforth the subscription will be 11. Oak. 4d. per annum (25 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriptor's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iociand and the Farce Islands). Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxemburg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Servia, Sweden, Switzerland, United States, Maltz, Turkey, Morocco, Tunis, and the Cannay Islands. Spain 11. 19s. (50 frs.)

THE SUBPLEMENTARY RUPET—We have cerived occasional complaints, and of

TURREY, Morcoco, Tunis, and the Canary Islands. Spain 11. 128. (80 178.)
THE SUPPLEMENTARY SHEET.—We have received occasional complaints, and o'
late a good many, that the Journal is delivered by country booksellers without
the Supplement. Subscribers would oblige us by demanding that the paper
should be handed to them complete, as every Journal is accompanied by the
Supplement when it leaves our office, and the fault of omission must rest wish
the country bookseller or their London agent.

# THE MINING JOURNAL.

Bailway and Commercial Gazette.

LONDON, DECEMBER 14, 1878.

OUR EXPORTS-IRON, STEEL, HARDWARE, MACHINERY, COAL, &c.

COAL, &c.

The Trade and Navigation Returns just issued, so far as our exports for the last month are concerned, are by no means favourable, but taking the year up to the end of November the results are more favourable than might be expected, considering what an outcry there has been as to the general depression prevailing in every branch of industry in all parts of the kingdom. The value of the exports of British and Irish produce and manufactures during last mounted to 15,961,669L, against 16,753,364 in 1877, and and 16,510,627L in 1876, being a decrease of 4.7 per cent, as compared with 1877, and of 3.9 per cent, as compared with 1876. The total for the eleven months is 178,143,305L, against 182,811,576L in 1877, and 185,325,348L in 1876, showing a decrease of 2.6 per cent. total for the eleven months is 178.143 3054, against 182811,5764, in 1877, and 185,325,3484. in 1876, showing a decrease of 2.6 per cent. only as compared with 1877, and of 3.0 as compared with 1876. It may, however, be stated as a set-off for the decrease of our exports that there was a decline last month in our imports equal to 194 per cent, in comparison with November, 1877, whilst the failing off for the present year, as compared with the same months of last year, was equal to 6.1 per cent. In pig-iron Germany and Holland have taken the largest quantities, the former absorbing a good deal in the making of Bessemer, and, singular to say, of late has successfully competed with us in steel rails for continental railway companies. The exports for the year so far have amounted to 864.092 tons, against 824,448 tons for the corresponding months of last year. Like everything else, however, the price of pig has come down, and tons, against 824,448 tons for the corresponding months of last year. Like everything else, however, the price of pig has come down, and whilst the average for the present year has been about 53s, per ton, last year the rate was 57s, 81, per ton, thus showing our ironmasters have had anything but an easy time of it, at the same time fully justifying the reduction in the wages of miners and others. In railroad iron of all descriptions there has been a falling off of late, the principal decline being in iron rails, whilst those made of steel still maintain their position, Russia being the largest buyer, and after her Australia, British India, and British North America. The total of iron and steel rails exported last month was 22.615 tons, against 29.201 tons in November, 1877, and for the elseven months just ended 29,201 tons in November, 1877, and for the eleven months just ended 348,155 tons, as compared with 382 640 tons for the same period of the previous year. Hoops, sheets, boiler, and armour plates have declined from 183,658 tons for the first eleven months of last year.

declined from 183,658 tons for the first eleven months of last year to 178,640 tons for 1878, the decrease being due to the United States, which has taken a very small quantity indeed during the year, whilst Russin, India, and Australia have been the largest consumers. Very little change has taken place in tin-plates, the exports up to the close of November having been 143,914 tons, against 141,121 tons for the corresponding months of 1877, America taking more than one half of all that is sent out of the country.

Cast or wrought iron figures for 232,250 tons this year, against 231,444 tons in the previous one, a large proportion having been sent to Brazil and our own colonies. Last month the exports of wrought and unwrought iron were 193,791 tons, of the value of 1,547,422. whilst in November, 1877, they were 184,748 tons, valued at 1,633,6071. Here we have an increase of 9043 tons, but with a decrease in value of no less than 86,1851.—a decline equal to 5-3 per cent. for the month. Taking the eleven last months, the quantity of the game description of iron sold abroad was 2,150,075 tons, valued the same description of iron sold abroad was 2,150,075 tons, valued at 17,158,861*k*, against 2,171,170 tons, of the value of 18,542,880*k*, for the same description of iron sold abroad was 2,150,075 tons, valued at 17,158,861k. against 2,171,170 tons, of the value of 18,542,880k., for the corresponding months of last year, or a decrease in value of 7.5 per cent. It thus appears that the average price of the iron was fully 10s, per ton higher in 1877 than it was in 1878—another significant fact for those who do not believe that all qualities of iron have undergone a most material reduction during the present year. Makers of machinery, all things considered, show to advantage in the returns, the value having advanced from 6,146,692k for the eleven months in 1877 to 6,936,496k—an increase of 12 8 per cent. But, as in other goods, the increase in value does not correspond with the increase in the exports. British India has been our best customer, having taken double the quantity this year to what it did in 1877, whilst more has also been done with Australia, Russia, Germany, and Brazil, whilst there has been a marked falling off in the business done during the present year with Italy. The value of the exports of hardware and cutlery show an increase of 0 8 for the last month, as compared with November, 1877, being the difference between 195,703k and 293,196k. But when the eleven months are taken we find a difference in the opposite direction, for whilst the exports in 1877 were put down at 3,055,700k, those for 1878 were 3,026,989k. It mey, however, again be stated with respect to cutlery and hardware that the weight during the present year was heavier than in the past one. Australia has been the largest consumer, taking fully one-sixth of the entire of the exports, whilst the United States comes next, despite the protective nature of its tariffs, and is followed by British India, the Brazils, Germany, and British North America, in the order given.

The exports of coal, cinders, and patent fuel show a falling off

The exports of coal, cinders, and patent fuel show a falling off last menth as compared with the same month of 1877, the quantities being 1,130,580 tons and 1,122,911 tons. Taking the two periods, France fell off from 260,526 tons to 210,999 tons, whilst less was also sent to British India (where coal is now being extensively worked). Brazil, Malta, and Sweden and Norway. A short time since the Spanish Government prohibited the use of British coal in the arsenals of that country, only allowing it to be sold by auction in Cadiz, so that we find during the last month our exports to that country and the Canaries were only 47,558 tons, against 3,075 tons for the corresponding month of last year. On the other hand, there was an increase in the tonnage sent to Italy, Turkey, and Egypt. For the 11 months of 1878 the quantity sent away was 14,381,430 tons against 14,311,678 tons for the corresponding months the order given. and Egypt. For the 11 months of 1878 the quantity sent away was 14,381,430 tons, against 14,311,678 tons for the corresponding months of last year, showing an increase of 69,743 tons. A great difference, however, took place in the price, for whilst the smaller quantity was valued 569,7444, the larger one was put down at 515,2534. Last month the average price of the coal, &c., exported was about 9s. 2d. per ton, and for November, 1877, it was 10s. per ton, whilst for the 11 months of the present year the price averaged 9s. 6d. per ton, and for the same months of last year it was 10s. 3d. per ton.

The fact that the price of coal is cheaper at the present time than it was several months ago, shows how active is the competition, and how hard pressed our colliery-owners are when they are selling during the winter at prices that can berely pay the cost of raising, so that is by no means surprising to find them asking their men to submit to a radiction of wages. submit to a reduction of wages.

#### THE MANUFACTURE OF STEEL RAILS.

Our English makers of Bessemer rails are now meeting with an amount of competition on the Continent to which they were strangers not so very long since, and this is likely to increase to a still more serious extent. During the piesent year we have exported to Germany about 3000 tons monthly of Bessemer rails, but now the German makers have actually been entering into contracts for them at prices less than they can be produced for in this country, although large quantities of raw iron are exported to Germany. We certainly do not see how German makers of rails can manufacture them so cheap as we can, but that they have taken orders in competition with English makers is now an established fact. At the recent meeting of the British Iron Trade Association this new movement was brought under notice in a letter from Messrs. BOLCKOW and VAUGHAN, in which it was stated that German manufacturers had quite recently obtained several Italian contracts for rails, as well as some for the Portuguese Government, delivered at Lisbon as low as quite recently obtained several Italian contracts for rails, as well as some for the Portuguese Government, delivered at Lisbon as low as 6l. per ton. For some time past we have been sending about 1000 tons of steel rails every month to Italy, but we certainly cannot see how they can be delivered at anything like the price charged by the German manufacturers, with all the advantages we have over them. But the most singular circumstance in connection with our German connection in the they charge their every Government 7.1 [10]. But the most singular circumstance in connection with our German competitors is that they charge their own Government 71. 10s. per ton for the same rails that they sell to others at about 55. per ton. During the early part of the year we done a very tair trade with Spain in steel rails, but of late there has been a great falling off, and, of course, to the advantage of our continental rivals. This is, of course, to a great extent to be attributed to the anomalies of the Spanish tariff and the treaty entered into by that Government with the Belgian and German Governments on the "most favoured nation" principle. The result of that arrangement is that we have been placed at a discount of 20 per cent, with the countries alluled to. That is, English rails are taxed to the extent of 20 per cent, above those of Germany or Belgium.

This, we may say, has some connection with the duties charged by England on Spanish wines of a certain class, but it is to be hoped

This, we may say, has some connection with the duties charged by England on Spanish wines of a certain class, but it is to be hoped that an arrangement will be come to by which English rail manufacturers will be placed in as favourable a position as those of any other country. Still, it is evident that if we are to hold our own in the article of steel rails on the Continent everything possible will have to be done to lessen the cost of production. Large quantities of hematite ore are brought from Spain to this country, and there is no reason why its present cost should not be sensibly reduced. The cost of freight, too, is an important item, and efforts should be made to have it lowered, not only by sea, but by railway as well. The cost of freight, too, is an important item, and efforts should be made to have it lowered, not only by sea, but by railway as well. About a fortnight ago the Bessemer rail makers of Sheffield and the district called the attention of the Midland and Manchester, Sheffield, and Lincolnshire Railway Companies to the necessity that existed for reducing the carriage rate to the Mersey and the Humber ports for rails made by them. The directors have promised to give the matter their most serious attention, and it is to be hoped they will see their way clear to making a reduction that will be felt. The question is a most important one, and the position we have so far held in the continental and other markets as producers of Bessemer rails will require all the energy of our makers to maintain, and the aid as well of all persons interested directly and indirectly in the progress of a trade which, originated in England, is in every sense of the term a British industry.

sense of the term a British industry.

# FOREIGN COMPETITION.

Mr. Macdonald, M.P., hears now so much on all sides about foreign competition in the iron trade that he deems it right to make known his views upon the subject. Prima facie, the facts are rather against Mr. Macdonald, Mr. Halliday, and other prominent champions of Trades Unions. Before they began to unsettle the coal miners and iron workers of South Wales that district was prosperous. Capitalists secured good returns upon their investments. coal miners and iron workers of South Wa'es that district was prosperous. Capitalists secured good returns upon their investments, and working men received wages which, judiciously expended, procured them all the substantial comforts of life. Now all is changed, and changed very grievously for the worse. The property of the capitalist has been sadly depreciated, and the wages of the working man have either been materially reduced, or, what is worse still, they have stopped altogether. The Trades Unionism, expounded by Mr. Macdonald and Mr. Hallday, which was to have brought untold prosperity to the Welsh working man, has landed him, instead, in a sea of troubles, while it has in some cases deprived him of even the bare necessaries of life. Now we read of increasing foreign competitior, instead of our old industrial supremacy upon the leading markets of the world. Mr. Macdonald hears so much of this foreign competition that he is fain, through the columns of the Western Mail, to make an attempt to explain it away.

We will give Mr. Macdonald the benefit of one admission to begin with, and will express our opinion that the importance of

begin with, and will express our opinion that the importance of Belgian competition has been much exaggerated. There have no doubt been instances in which Belgian competition has been fatal to English ironmasters and English ironworkers, but the success of the Belgians has been confined to some descriptions of iron, and the whole metallurgical production of Belgium is so comparatively whole metallurgical production of Belgium is so comparatively limited that Belgian competition cannot amount to very much. But the case is far different with American competition. That is becoming increasingly formidable, and we unhesitatingly affirm that Mr. MACDONALD, Mr. HALLIDAY, and the Trades Unionists are to some extent accountable and responsible for the growth of the Transatlantic competition with which we have now to deal. The Americans saw England's difficulty was America's opportunity; that the disordered and disorganised condition of the English labour market had deprived Great Britain of her old power of cheap production; and that the time had arrived for Americans to make a great duction; and that the time had arrived for Americans to make a great and supreme effort to establish a vigorous metallurgical industry of their own. Ten years since large quantities of South Welsh rails and other iron went at profitable prices to the markets of the United States; now these markets are closed to South Wales, to the great and serious loss of that district, and we charge the loss to a considerable extent upon Mr. MACDONALD and the Trades Unionists. Mr. MACDONALD and the Trades Unionists. DONALD points to the heavy duties imposed by the American Congress upon English iron entering the United States, and argues that these duties show that the Americans still feel themselves unable to compete with us. No doubt the American ironmaster prays protective duties in aid of his operations. But it must be remembered that the United States comprise a vast area; that great distances have to be overcome in the transport of raw materials, and the delivery of ma-nufactured goods; and that labour is not so very readily obtainable for iron-making purposes upon the other side of the Atlantic. What we contend for is the probability that had we continued to deliver iron at cheap rates upon the American markets the Americans have been content to take our iron for a much longer period. happened our iron became dear through the agitation maintained by the Trades Unionists, and the American bear distributed by the Trades Unionists, and the Americans have driven our iron from their own markets, while their surplus iron production is beginning to overflow into other countries.

EDISON'S ELECTRIC LIGHT.—The telegram received during the week from New York to the effect that the essential feature of Mr. Edison's alleged discovery of an improved electric light is the production of the light by the incandescence of an alloy of platinum and iridium affords conclusive proof that the invention is worthless, or rather no invention, since precisely the same method of producing the light was invented 33 years ago, and has, according to Mr. Fontaine, the well-known french electrician, been constantly used in lecture experiments ever since, although it has never given satisfactory results for illumination. If Mr. Edison have produced

a light strong enough to read by with incandescent fridio platinum and one Daniell cell the size of this cell must have been larger than

Manufacture of Rails in America.—In 1872 the United States imported nearly 600,000 tons of iron and steel rails for the railway system of the country. Five years later, in 1877, the importation was reduced to 12 tons, the home production in that year having risen to nearly 760,000 tons, or more than the total import in 1871. The total quantity of iron and steel rails manufactured in the United States in the five years ended 1871 was nearly 3,000,000 tons, and in the five years ended 1877 the total production had increased to over 1,000,000 tons.

TIN.—We are indebted to Mr. Thos. B. Provis, secretary of the Mining Institute of Cornwall, for the following returns:—The quantity of tin sold from the undermentioned mines during the month of November was 765 tons 4 cwts. 3 qrs. 10 lbs.—Wheal Agar, Wheal Basset, West Basset, Blue Hills, Carn Brea, Cook's Kitchen, South Crofty, South Condurrow, Dolcoath, West Frances, Wheal Jane, Wheal Owles, Pedran-drea, Penhalls, Wheal Prussia, East Pool, Tincroft, Wheal Uny, Tin Streams.

#### GOLD IN INDIA.

GOLD IN INDIA.

The first portion of the report of Mr. Oliver Pegler of the gold deposits of the South Wynard district was published in the Journal of Nov. 23, but owing to delay in obtaining the engravings which should have accompanied it has been impracticable to give it complete until now. In its more complete form its value will, no doubt, be appreciated. Of course, the great question which will determine whether the Wynard deposits can be profitably worked will be the average richness of the reefs, and although as Mr. Theodore Highes shows a partel crushed by one company has given 2½ dwts. of gold per ton, by another 3 dwts., and by a third 10½ dwts. of gold per ton; the prospects are by no means discouraging. His name not being known as a miner or as a geologist it may be assumed that he is an amateur who has taken a mistaken view of the case, and that being such, such authorities as Messrs. Johnson and Matthey may be taken in preference. It is not at all improbable that in a district like South Wynaad the auriferous ground has been treated as it comes, without any attempt at concentration, and Mr. Hughes should be informed that if this be the case the profuce of 2½ dwts, per ton leaves nothing to complain of. As it can scarcely be supposed that Mr. Hughes would be bold enough to question Mastra, Johnson and Matthey's accuracy, it may be suggested that there is at lea-t one other conclusion that he might have arrived at. As they obtained nothing below 18 ozs. of gold to the ton, and some as high as 816 ozs. of gold to the ton, it is evident that by selection none of the rubbish to which Mr. Hughes alludes need be put through the machinery, and the mere circumstance that it has been treatel is but a proof of the incompetency of those who have had charge of the operations.

Mr. Brough Smyth, from having been for many years Secretary

is but a proof of the incompetency of those who have had charge of the operations.

Mr. Brough Smyth, from having been for many years Secretary for Mines at Melbourne, would scarcely be likely to make a favourable report upon a district which was incapable by the application of proper skill of giving any better results than those mentioned by Mr. Hughes; nor would Mr. Brough Smyth be likely to recommend gold miners to work on any reef whatever, regardless of its value. He states, on the contrary, that the yield varies from a few pennyweights to 200 ozs. per ton. Of course no one anticipates that even the average of 100 ozs. of gold to the ton of ore will be reached, but as all know that in South Wynaad, from ½ oz. to ½ oz. per ton. Owned yeld large profits, it is not unreasonably concluded that Mr. Brough Smyth's discoveries leave no doubt as to the district being worth attention. More than this cannot be said until Mr. Brough Smyth's report is forthcoming, and which it is hoped will reach this country shortly, but in the meantime the perusal of Mr. Pegler's report, with the illustrations accompanying it, will enable much useful information to be obtained.

# TIN MINING IN SAXONY.

The Records of the Royal Office of Mines of Freiberg mention that extensive and rich deposits of tin are to be found in close proximity to the village of Ehrenfriedersdorf, situated in what are known as the Erzgebirge of Saxony, which were worked by the ancients as far back as the 14th century, but only superficially, and although prior to 1692 there are no reliable statistics as to the quantity of metal which these mines have yielded, undoubted data indicate that from 1692 to 1876—a period of 184 years—5425 tons of tin have been extracted, without, however, having made any appreciable impression upon the enormous mass of mineral still to be won. Many causes combined to prevent an extraction upon a more extended scale, not the least important being that these mineral fields were divided into a number of small holdings, and the various proprieturs were scarcely unanimous in their views regarding the preparation of the ore or the mode of smelting it. The quality of the mineral derived from the various lodes also varied very materially, and it is not therefore, astonishing that a want of unity of action as to the preparation of the mineral and as to proportions of metal which each owner should receive from the smelting works should prevail.

The present proprietor of the tin mines of Ehrenfriedersdorf puchased in 1872 the whole of these divided properties, and commenced working in a more regular and systematic manner, so as to develope the immense mineral resources of this district, and in doing so be has at his disposition the varied advantages which modern scienchas connected. The Records of the Royal Office of Mines of Freiberg mention that

the immense memeral resources of this district, and in doing so in hasat his disposition the varied advantages which modern sciencells opened up. This property is situated only about four miles distant from the Schönfeld station of the Annaberg-Chemnitz State Rais way, from which a good carriage road passes the smelting work-belonging to the mines, so that the means of transport, whether of the one hand for fuel or on the other for the expedition of the melal, is easy and cheap, and consequently, as coals can be obtained at acceptingly moderate prices at the rail way station, the cost of smell-

gly moderate prices at the railway station, the cost of small

ceedingly moderate prices at the railway station, the cost of smalling is reduced to a minimum.

These mineral deposits form two distinct but well-defined groups situated east and west of the village of Ehrenfriedersdorf. The eastern group of lodes is known as the Sauberg, and the western group as the Freiwald. The Sauberg group comprises eight loss, nearly parallel in direction east and west; this mine is accessible by an adit—the Sauberger Stolln—about 1½ mile in length, oping upon the Valley of Ehrenfriedersdorf below the smelting well unwatering the mine, and cutting the mineral, at a depth of abid 75 fms., while a new main winding shaft has been sunk by the present proprietor, and connected with this adit, at a depth of abid 60 fms. from the surface. The Freiwald group comprises 14 lode, 60 fms. from the surface. The Freiwald group comprises 14 lode, 60 fms. from the surface. The Freiwald group comprises lated four are equally well-defined lodes, crossing the others in a nothwesterly to south-east direction. Three adits have been driven in the Freiwald, the deepest and most important of which—the Laid Stolln—opening upon the Valley of the Greifencreek, though situal 60 fms. above the Sauberger Stolin, cuts the mineral of the Freimle at a depth of about 55 fms. With a view of developing these mineral of the properties of the contract of the contract of the properties of the contract of the cont at a depth of about 55 fms. With a view of developing these mining the most practical manner, the present proprietor is engagd in the most practical manner, the present proprietor is engagd is inking a new main winding shaft, so as to make the Leier Subtherman and 25 fms. more are necessary to attain the adit level, while a dit itself must be driven some 220 fms. up to the shaft. By the means a magnificent and almost virgin mine will be opened by yielding ore of far richer quality than now extracted from yielding ore of far richer quality than now extracted from which is conducted to both mines by an artificial trendship, should reasing, and washing machinery, and finally furnishing to ing, dressing, and washing machinery, and finally furnishing to necessary power at the amelting works in the Ehrenfriedman Valley by means of a turbine.

The tin from these mines, from its excellent quality, finds are market in Saxony, Prussia, and Austria, while the arsenic and sidual products are highly remunerative, more especially as its cheap and abundant. Undoubtedly there is a splendid fator of these mines, and it is condently believed that administration of the second of

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Cocasion o fol and judicious management they will return a handsome dividend upon the large and necessary expenditure that has been and has still to be incurred.

# THE LEAD MINES OF FLINTSHIRE AND DENBIGHSHIRE.

THE LEAD MINES OF FLINTSHIRE AND DENBIGHSHIRE.

It is a proverb that history repeats itself, which is not inapplicable in the close imitation of events and circumstances in some of the most famous lead mines in the above counties. Some of our readers may not be aware that the metalliferous bearing rocks in question range from Talargoch southward to Minera and beyond, in which are situated some of the richest lead mines in the world—which in Flintshire alone for a long period of years produced the enormous quantity of 30,000 tons annually. In a district so famous it may not be uninteresting to enumerate a few facts and incidents in the history of one or two of the oldest and most celebrated to this day. Talargoch, at the northern extremity, has been rich at intervals for centuries. The main lode in this mine intersects and, as it were, cuts in two the carboniferous rocks and chert from the slate to the coal measures. An extraordinary upthrow of over 150 yards on the heading or footwall has given it access to all the bearing strata, feeders, and cross-courses, hence the vast deposits that have been brought to light by successive owners during the last 300 yeers. The circumstances above are so exactly similar in the Great Minera and the Gwernymynydd, excepting only that the latter is comparatively in its infancy, that it would be simply a repetition to describe. One other remarkable feature of the most celebrated lodes in this range is the conformation of the surface on their backs, showing the great break through from the coals to the slate; and we would draw attention particularly to Gwernymynydd and Cathole (the same lode) as an illustration of our meaning. This mine has been enormously rich at its western extremity, there being one continuous run of ore of great width and richness of 400 yards in length worked into water. Such was also the case at the celebrated Minera before the last successful operations, previous to which it had been abandoned for years, and was said to be exhau-ted. Skill and capital, howe

#### REPORT FROM CORNWALL.

REPORT FROM CORNWALL.

Dec. 12.—Hopes are doomed to be disappointed in one way or another, however confidently or with however much of reason they may have been entertained. It is probably too late now to expect that the last fall in the tin standard will be more than recovered, if indeed that recovery takes place ere the month and the year comes to a close. None the less, however, for this unlucky backward movement do we retain our confidence in the prospects of the immediate future of the prices of tin and of our tin mines. The tide of prosperity, for which we have so long been looking, is only delayed, not turned back, and again it is the waiters who are wise.

The stoppage of the West of England and South Wales District Burk will not affect Cornwall directly; but it will certainly have an indirect adverse influence. We say stoppage in preference to failure, because there is no doubt whatever that the business of the bank was properly conducted, and was essentially sound. What has brought about this unfortunate result is first the shaking of confidence in joint-stock banking caused by the disgraceful revelations in connection with the City of Glasgow Bank, and secondly the setting afloat of certain unfounded rumours, which appears to have been partially at least dictated by motives of revenge, because the bank did not choose to allow a customer to use them as he pleased. Hence a run and thence the stoppage. There were no branches in a cornection but the reverse because the bank did not choose to allow a customer to use them as he pleased. Hence a run and thence the stoppage. There were no branches in Cornwall, but there were several in Devon, and the business relations of Cornwall with Devon, and still more with South Wales, where the bank enjoyed an unabated confidence for years, must have their untoward effect.

It is amusing to find the silly folk who were so anxious to sell in Smuth Frances a few days since now equally anxious to buy. If

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in South Frances a few days since now equally anxious to buy. If they only injured themselves by their folly it would not matter much—they deserve it; but the worst is that all these unnecessary panies tell against a mine; and the harm thus done is not compen-

panies tell against a mine; and the harm thus done is not compensated for by the advantage to the wide-awake, who are ready to relieve their neighbours of their too burdensome shares, on what may be regarded from the buyer's point of view as very reasonable terms. Capt. James is to be congratulated on the speedy way in which the effects of the explosion were repaired.

It does not appear likely that the celebration of the Davy Centenary will come to much. The Penzance Town Council are considering the matter; and the exhibition of scientific apparatus which Mr. J. H. Collins and Mr. A. K. Barnett have in hand cannot take place till next month. So unless the "memory of Sir Humphry Davy" is drunk in solemn silence, which can be arranged on the very smallest notice, it is perfectly clear that the celebration of his centenary will neither come off on the day of the month on which he was born nor in the centenary even of the year. Nothing like taking time by the forelock in these matters, for if such a thing is worth doing at all it is certainly worth doing well.

# REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

BEPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Dec. 12.—1 am much obliged for the explanatory letter of Capt. Mitchell relative to the deep driving under the great open-cast of the Parys Mountain Mines. The answer to the enquiries made is clear and straightforward, and one that other mine managers may do well to copy when they are asked simple civil questions. The prospectuses and reports of the South Cambrian Mines are incirculation. One cannot but wish this mining enterprise well, but is it not premature to trade upon the reputation of the Cambrian Mines and is it not unmining like to assume that one lode must be soon because it runs parallel to another that is? Roman Gravels with the sale of the sale o

Llangynog Lead Mines, and of numerous other mines, works, and quarries in the district. He is a Cornishman, and began his career with Messrs. John Taylor and Sons. Arrangements are reported to be nearly complete with a contractor for the construction of the railway from Ruthin to Cerrigydruldion. This line, if made, will open up what is now the most inaccessible part of North Wales. The signs of increasing distress among the mining population, especially that of the colliery districts, are everywhere apparent. Gangs of 20 colliers or more are drawing wagon loads of coal about the country and begging. A large proportion of the population is on the verge of extreme poverty, and soup kitchens and other methods of relief are being devised. Some of the best flour mills are only running three days a week, and beef, mutton, and pork, with all kinds of farming produce, are slow of sale at low rates in the markets.

with all kinds of farming produce, are slow of sale at low rates in the markets.

The boring of the deep well at Bootle, Liverpool, for the supply of water is finished, and may be regarded as an engineering success. The hole is 26 inches diameter for a depth of 1000 feet, and 20 inches diameter for another 300 feet. Starting in the Keuper beds of the New Red Sandstone it has ended in the pebble beds near the base of that formation. Situated midway between the Flintshire and Lancashire coal fields, the coal measures being doubtless continuous underneath, the boring has revealed a thickness of New Red Sandstone

neath, the boring has revealed a thickness of New Red Sandstone double that which was anticipated. Great expectations are entertained of the quantity of water derivable from this well, but doubtless the quality will be hard.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Dec. 12—The collieries which are raising house coal are meeting with a large demand, for the existing severe weather has told in their favour considerably. Prices are firm. Up to the present the Dudley and Tipton coalowners, together with the great Sandwell Park Colliery Company, have been most benefited by the winter season, as the supply from Cannock Chase has been shut up. Now, however, the Cannock Chase owners are setting their machinery to work again. A fair number of pit companies have resumed work upon the understanding that their wages shall be regulated by the terms which are ultimately decided upon in settlement of the strike. Whether these terms will be a drop of 3d, per day, or whether the (11 rate of wages will be confirmed, is uncertain. The attempt of the masters to increase the hours will be wholly unsuccessful. The pig-iren trade gets worse and worse; only about 38 furnaces are now blowing. Bad as trade has now and again been in years gone by it was never so bad as now, for in former periods of depression products could be sold at a price, but now they cannot be got rid of at all. I hear this week of stocks of pigs at makers' furnaces of unprecedented size. It would now seem that the wages notice of the New British Iron Company for the termination of contracts is confined to their blast furnace hands, and to those of their colliers whose labour was necessary to the production of the coal used in the one blast-furnace which they have for some time been solely blowing, and which has now been put out. Their finished iron works and their other collieries they are keeping on. Right and left similar wages notices are being given by masters with a view to decrease production, and the firm of Messrs. Noah Hingley and Sons, Harts Hill, Dudley, may be mentioned in this connection. Orders for finished iron are increasingly scarce, and less work is doing at the mills and forges all round.

The ironworkers are pursuing a ridiculous policy touching the new weights

The ironworkers are pursuing a ridiculous policy touching the new weights and measures regulations. At a meeting of the Wages Board held in Birmingham on Monday the employers moved a resolution that as the number of pounds to the ton would under the new law be reduced from 2400 to 2240 lbs. a corresponding reduction should be made in the price per ton paid to the operatives. The men's representatives refused to accede to any corresponding reduction in wages. The employers intimated they were unable to make any advance on the present rate of wages, and the Board then separated. Practically the men's conduct is asking for an advance of 6d. per ton. That they will get what they want is altogether unlikely. Their unreasonableness at a time like the present is certainly surprising.

Messrs. Jabez and James Griffiths, coalmasters, West Bromwich, formerly of the Denbigh Colliery, Tipton, have failed, with liabilities amounting to 4000. Francis Russell Harley, coal merchant and engineer, Horsley Fields, Wolverhampton, has also suspended, with liabilities 800. Joseph Jewkes, iron merchant, Wolverhampton, after his affairs had been further investigated in the County Court there, was on Monday allowed to pass his examination unopposed.

there, was on Monday allowed to pass his examination unopposed.

Trade in North Staffordshire is without any revival. The ironstone miners employed by the Chatterley Iron Company have resumed work at the 10 per cent, drop, and the blast-furnacemen of
the same firm have also submitted to reduced remuneration.

# TRADE OF THE TYNE AND WEAR.

Dec. 11.—There is a little improvement in the Coal Trade here, and those works producing best steam and house coals are fairly employed. The price of coal continues comparatively low; best steam coal does not realise more than 8s, 9d. per ton, and Durham steam coal 7s. 6d. per ton. Only best house coals realise 10s. per ton, and all other coals of lower class have not improved in value. In Durham c. king coal works are still being closed. The men at steam coal 7s. 6d. per ton. Only best house coals realise 10s. per ton, and all other coals of lower class have not improved in value. In Durhan o.king coal works are still being closed. The men at the Boyne Colleries have got notice of the intention of the owners to close the works shortly. There is some hope that the Hebburn and Wardley Collieries will be started again shortly, the men having offered to go in at reduced rates. The return of the accountants under the sliding scale arrangement in Durham shows that the average price of coal is a fraction less than 4s. 8d. per ton. The minimum rate of wages under the agreement had already been reached, but this only shows that the minimum had been placed too high, and unless some improvement takes place shortly a further reduction by the Durham Miners' Association is inevitable. It must also be noticed that many of the mineowners who are not members of the association have already made reductions on their own account. The coal and other trades here have been much retarded the past few days, owing to heavy falls of snow blocking up the branch rail ways and roads. A wrought iron sleeper has been patented by Mr. Charles Wood, and the North-Eastern Railway Company are about to try this sleeper in a section of their line near Middlesborough. Hopkins, Gilke, and Co. will roll those sleepers, and, of course, the experiment will be watched with considerable interest. Should this sleeper prove to be successful it may lead to an important improvement in the manufactured iron trade.

The arbitrators, Mr. Edward Williams and Mr. Lloyd Jones, have met and arranged for the appointment of an umpire. Mr. J. G. S. Lefevre, the member for Reading, has accepted the office, though no appointment that the whole of the men employed by Mr. W. B. Beaumont, M.P., at his lead mines and works in Allendale, and also at Allenheads, have received notice that their employment will be discontinued on the 23th instant. A large number of men were and ischarged some few months ago, and the notice

less, and it is held that stocks will very largely increase during the winter months, especially as they advanced by above 15,000 tons last month. The winter is expected to be a hard and sovere one. The arbitration arrangements are being pushed on for settling the wages question in the finished iron trade. The manufactured Iron trade is, however, slack. The forthcoming returns, giving the production and prices for last quarter of finished iron, are expected soon, and will be looked forward to with interest. The plate manufacturers appear to be fairly employed where specifications are not held back, but there is not much promise for the winter's work beyond the end of the year. The price of plates is about 54. 17s. 6d.; bars are, for ordinary qualities, 54.5s.; and angles 54.5s. to 54.7s. 6d., less 2½ per cent. The founders appear to be pretty fairly employed, with few exceptions, and some of them have work which will last for a length of time. Coals and coke are unaltered.

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Dec. 12.—Business is still very bad in all the iron districts in Derbyshire; a large number of men are totally unemployed, and are dependent on the fund that has been raised in Chesterfield and the district for their relief. Ironmasters do not appear to force their material into the markets with the same energy that they did, so that the diminished production is just as favourable to them as the larger one. The foundries are far from being busy, even with the decrease in the number of hands, pipes, pillars, cylinders, and pump castings are still in but moderate request. The Bessemer makers are as busy as ever, being principally engaged on orders for Indian railways. Coal for household purposes is now in much better request than it has been for a long time, and there has been a marked increase in the out-put of late from the leading collieries. The London coal trade of late has become more than usually active, and the Midland Railway during last month carried from Derbyshire a much larger tonnage to the Metropolis than during any previous month in the annals of the Midland coal trade. Steam coal, however, is very quiet, and the same is the case with respect to other qualities as well. With the increased business doing, however, prices at the pits do not appear to advance, so that when profits are made they are remarkably small indeed. In Sheffield there has during the last few days been a slight improvement in several branches, more particularly in fine qualities of cutlery and silver plated and white metal goods. In the other departments, however, there has been no change. The Bessemer mills are running much as usual, and there is a fair amount of business being done at the ship and boiler plate mills, but heavy armour plates are quiet.

In South Yorkshire there is just now some dissatisfaction on the part of the miners, as their employers have announced that they cannot carry on much longer unless the men meet them in their difficulties by submitting to a reduction of 12½

be disturbed, but that an arrangement will be come to, so as to prevent a strike or lock-out.

Not a week passes without some illustration of the fact that a very large percentage of mining accidents may be included in the preventible class. At an enquiry on the body of a miner who met with his death at one of Lord Vernon's pits through the cage in which he had just ascended beginning to descend again before he could leave it, owing to the catches not being put down, the banksman being absent. The engineman admitted that "in winding coal they always had to drop the cage on the catches, but when men came up this precaution was not always taken." The jury censured the engineman and the banksman, and concurred in the recommendation of the Government Inspector that self-acting catches should be used. Mechanical contrivances are evidently more to be trusted than the care and discretion of those who were employed about the pit in question.

# REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Dec. 12.—A most serious commercial disaster has occurred to this district. The West of England Bank, which has many branches in South Wales, and which was, to a great extent, the bank of the district, has suspended operations. There had been ugly rumours floating about, but so persistently had these been contradicted that it was a matter of surprise when the local morning papers gave the news that the bank had been obliged to suspend operations. There had been a "run" on the bank, however, a very strong one—such, in fact, as no bank could withstand, and hence the collapse. Conparatively speaking, there are but few shareholders in the district, so far as at present can be ascertained. The feeling on the part of depositors began to soon cool down, and no doubt they will get their money in full after a time; and it is this waiting which will seriously inconvenience many. Some believe that the bank's difficulties commenced from the time of the Fothergill affair, and no doubt the depression in the coal and fron trades has had a prejudicial effect. There are said to be over 400,000% locked up, which it will be, to say the least, exceedingly difficult to realise in these depressed times.

presents an appearance of depression before unknown. matters have, of course, contributed to bring about this state of things, prominent among which is the falling off in the demand for railway iron. Very little of this commodity, comparatively speakrailway iron. Very little of this commodity, comparatively speaking, is now turned out in this district, and during the last few weeks iron clearances have been very small, and mainly to Malta and Porto Torres, to which latter place 1000 tons went. During the last week or so no orders of any magnitude have been placed in the district, and even those which are secured too frequently do not leave the slightest margin for profit. Iron rails are selling at the works at some shillings less than 5l. per ton. Bars are rather quiet. Some of the works are barely kept on the move, and it is feared that as the winter progresses less work still will be done. Bossem rately rails are in fair request, and at late rates. It is satisfactory to be able to state that the timplate trade still shows an improvement. be able to state that the tim-plate trade still shows an improvement; prices continue to maintain a slight advance, and the works are well amployed four days a week.

The coal industry shows no material alteration. There is the usual demand for coal for shipment, and on behalf of France and the Mediterranean ports there is a good enquiry. The same keen

competition to sell is apparent, and thus prices keep low, and in most instances unremunerative. Steam qualites are in about ave rage request, while there is an undoubted improvement in the de mand for house coals, consequent on the sharp weather. At the new
Rhos Colliery, Pengam, a notice has been posted to the effect that all
contracts will be closed at the end of the present month. The
Patent Fuel Trade is very dull, and shipments show a falling off.
The Abercarn explosion enquiry will be resumed on Monday week.
At Tredegar Police Court on Tuesday. Mr. Plews appeared in behalf of Mr. Cadman, Government Inspector of Mines, to prosecute
William Cutley, manager of Rock Calliery, for an alleged infringe-

william Cutley, manager of Rock Colliery, for an alleged infringe-ment of the 3rd general rule, and also one of the special rules. Mr. Ward appeared for the defence. The matter having been laid before the Home Secretary, instructions had been sent down to prosecute the manager. The Bench decided on dismissing the summonses. The point raised by Mr. Ward was that the manager had used reason-able precaying in suphibility of the rules, and so, had done all in his

able precaution in publishing the rules, and so had done all in his power to prevent the rules being infringed. Mr. Plews applied for a case, and said he would write to the Home Secretary.

The directors of the Bristol Wagon Works (Limited) have declared an interim dividend for the half year ended Sept. 30 last at the rate of 5 per cent. per annum on the preference shares, and at the rate of 4 per cent. per annum on the ordinary shares.

#### REPORT FROM THE FOREST OF DEAN.

Dec. 12.-It is with satisfaction that we are able to report that the improvement in the Coal Trade has been well sustained, the large collieries on the eastern side of the Forest being in full operation, some of them having almost equalled in output the quantity large collieries on the eastern side of the Forest being in full operation, some of them having almost equalled in output the quantity brought to bank in the times of high prices and good trade. But as the iron trade is still down, there is a deep feeling in the minds of thoughtful men that the improvement is only due to winter influences upon household supply; and it is feared that unless the iron trade considerably improves the coal trade will again decline on the approach of warm weather next spring. Notwithstanding that the tone of the Tin-Plate Trade has improved of late, looking at it as a whole, yet it is not our good fortune to report improvement locally, but rather the reverse, seeing that the local firm has given notices for the termination of all wock contracts with the end of the year, work then to commence on short contracts, if not from day to day. There is improvement just now at the Forest Vale Forge, orders having been booked which enable the firm to give pretty full employment to the workmen, the men for some time past having been frequently on shortime. There is also pretty fait trade being done at two or three collieries on the western side of the Forest, but the complete stoppage or standatill of Park End Works, and most of the from nines on the western side, have the continued effect of many being without employment in West Dean, with the attendant evilspoverty and distress. The Office of Woods and Forests is enforcing the rule which bears on the forfeiture of gales, several having already been forfeited by neglect of opening and non-payment of dead rent-the Crown, after having given the required notice, have taken possession by re-entry. Others will follow. In some cases it may involve hardship; but it cannot be expected that galese should retain ownership and yet fail to comply with the conditions of retention. On the whole, the present, or a modified rule skin to the present, ought to apply to such property. Messrs, Barrett and Crawshay, to prevent forfeiture, are opening a gale by sink

esources.

The railway from Lydney—Severn and Wye system—to connect it with the evern Bridge, is now nearly completed, and most of the men discharged. The severn Bridge itself is satisfactorily progressing, but the Great Western Company seems in no hurry to effect their short links of line to connect their system with the new bridge. The company, however, is quietly carrying on by contract he junction line from Mitcheldean Road to the Whimsey, so as to effect the connection of the centre of the Forest basin with the Gloucester and Hereford line.

Mr. W. B. Brain has made further experiments at Trafalgar Colingry with the electric light, and after maturing his plans it is likely.

Mr. W. B. Brain has made further experiments at Trafalgar Colliery with the electric light, and after maturing his plans it is likely that an electric light apparatus will become part of the plant at the works. From having had the privilege of being present at some of the experiments, we are satisfied that the electric light may be used with great advantage for large works and areas in the open, or for casting a powerful light into dark receases, but it is not likely, we think, to displace gas in ordinary sized shops or dwelling houses. And from what we observed at Trafalgar Colliery we are persuaded of the necessity of a lantern being provided for it in cpen spaces, similar to what is used for marine lighthouses. With such an addition we think that in country mining districts, with large but scattered populations of thickly studded dwellings, a few such lighthouses of considerable elevation, and at proper distances, for the electric light could be used with great advantage to the inhabitants during the season of long nights. In some instances the electric cur ent could be betalind by working the battery engine by water-power, and in other cases steam-power could be utilised by connecting bands with engine machinery already in existence at comparatively small cost. Prices for coal at our local pits remain much as they have been for a considerable time past. Lime coal ranges from 3s. to 4s. per ton.

# SIMULTANEOUS BLASTING IN SINKING MINES.

Considerable improvement in the speedy and safe sinking of mines has been effected of late, so that the old system is likely to die out has been effected of late, so that the old system is likely to die out when the more modern mode becomes generally known. By the ordinary method three breaking down or sumping holes are bored, which are charged and then ignited with the ordinary time fuse, when they explode one after the other. But it frequently happens a slip takes place, breaking up considerably less than was expected, or, owing to the peculiarity of the strata, the latter is sent out or broken in a direction not anticipated. Unexploded shots also frequently occur, either from defective fuse or some other cause, which occasions great delay, for as a rule it is not considered safe to descend as far as the sinking has gone for some three or four hours quently occur, either from defective fuse or some other cause, which occasions great delay, for as a rule it is not considered safe to descend as far as the sinking has gone for some three or four hours after the light has been applied, as the men at the top cannot tell whether all the holes have exploded or otherwise. Unexploded shots, too, not unfrequently occur with an explosive which is stemmed with baked clay or similar material, more so, in fact, than with one which only requires a water stemming, for by the former mode unskilfulness on the part of the workmen may easily injure the fuse. By simultaneous blasting all these objections are obviated, and the work of sinking is far more effectually and speedily accomplished. This has been the experience of Mr. WALKER, of the Houghton Main Colliery, near Barnsley, where the thick seam of coal has been recently won under many disadvantages. The work done, however, was unusually rapid, and of such importance was the system employed that Mr. WALKER at the last meeting read a most interesting paper on the subject before the Midland Institute of Mining Engineers, and which will be read with profit by those interested in mining operations. In the paper it is stated simultaneous blasting was not affected by any of the ordinary be is, slips, or weak places known by the ordinary system, whilst there was no danger in going down the pit after shots had missed, which but seldom occurred where ordinary care was taken. By the simultaneous arrangement five holes were bored 6 feet deep at a distance of 2 feet 3 inches from the side of the pit at equal distances from each other, all pointing to the centre of the shalt at an angle of about 75°, or so that an 8-ft. drill would place it in about a similar position. When the rock is very strong the sumping holes would blast a portion of the middle out in one piece at times weighing from to 6 to 6 toos. This would necessitate the boring out afterwards of anfor. When the rock is very strong the sumping holes would blast portion of the middle out in one piece at times weighing from to 6 tons. This would necessitate the boring out afterwards of another hole in the piece from 2 to  $2\frac{1}{2}$  ft, deep to break it up. When this was discovered to occur it was found better to add an extra hole to the five others at an angle of  $67^\circ$ , the bottom of the hole when bored being under the centre of the pit. The sixth hole alluded to was seldom required, but when it was it broke the ground up well, thus facilitating the filling into the trunks, for although sinking trunks might hold from 50 to 60 cubic feet, and a chain might be leaded to account of the first of the first

trunks might hold from 50 to 60 cubic feet, and a chain might be lashed round a piece of rock (say, 30 to 35 cwts.) and cause the engines to lift it into the trunk, yet more time was lost by this operation than if the ground had been properly broken up.

The number of holes bored and the quantity of explosive used should be sufficient to break up the ground into pieces that one or two men could lift. It has been found cheaper, however, to break up the ground in the manner stated than by two or three men using sledge hammers, or by using the lashing chain previously mentioned, for whilst that was being done very little filling cou'd be going on by the other men. After the explosion has taken place the ground is broken to a depth of 6 ft. 6 in., the sides being ripped off to the full diameter of the pit, from 6 in. to 12 in. in depth. After the ground broken was removed to a depth of about 2 ft. 6 in., and whilst it was still in course of removal, the side holes were board. whilst it was still in course of removal, the side holes were bored about 5 ft, deep, and ten in number for strong rock. The holes were bored perpendicularly, as close to the sides of the pit as possible, so that when exploded the ground was ripped off to the full diameter of the pit, little or no pick work being necessary. Such

arrangement of sump and side holes was found to be not only the arrangement of sump and side noises was found to be not only the best for breaking the ground, but also for allowing more men to work advantageously in the pit bottom, for from three to four men more could be employed than by the old system, or even a greater number where time was of importance. When boring the five sump number where time was of importance. When boring the five sump holes as many as 15 men could work together—two strikers and a hewer to each hole—and who would be well out of each other's way; or with the side holes 20 men could be at work boring and filling, for if the fillers should have removed all the broken ground before the side holes were finished they could then assist in boring, so that even then there would only be two men to seeh hole.

even then there would only be two men to each hole.

As an instance of what could be done in a 15 ft. shaft by the simultaneous system, Mr. Walker stated that 21½ yards were sunk in seven consecutive days, the ground sunk through being chiefly strong bind, with about 8 ft. of rock. In the time named 931 ft. 6 in. of holes were bored, whilst there were also 322 gallons of water to be baled out of the bottom every hour. This was at a depth of 400 yards, yet had the engines been able to draw the stone out more quickly a greater depth would have been sunk. During the sinking of the  $21\frac{1}{2}$  yards it may be said that more than eight hours were lost of the 21½ yards it may be said that more than eight hours were lost in making necessary repairs. Exploding the side and sump holes simultaneously was tried, but was found to require a great deal more dynamite to produce the same results than had the sump holes been exploded first. That applied more particularly to rock, whilst in stone bind five sumping holes and eight side holes were exploded simultaneously with the best results, for although they required a little extra dynamite, the advantage of taking the sides down along with the centre of the shaft fully compensated for it, for not only did the men and the tools ride out of the pit once instead of twice, but there was no scaffolding required to get up to the side holes. but there was no scaffolding required to get up to the side holes. In soft ground which required blasting seven holes were bored to a depth of 6 ft. 9 in, from the side of the pit pointing towards the centre, all that the side of the pit would allow the drill to point. Another hole was then bored about 7 ft. 6 in. deep, at an angle of about 66°, the bottom of the hole being under the centre of the shaft. The eight holes were fired simultaneously in the description of ground a variously described and done year, well leaving or inset. of ground previously described, and done very well, leaving on just a little side to be dressed off with the pick. In another instance five sump holes were bored as much as 9 feet

In another instance hwe sump holes were bored as much as 9 feet deep, and when exploded broke up the ground 1 ft. deeper than they were bored, and left less thickness of ground on the sides than the 6-ft. sumping holes. After that had been done side holes were bored 7 ft. 6 in. deep, and on exploding them it was found that they had broken all the ground out at the bottom, and had left the top part of the holes in. This was partly expected by those who had charge of the operations as that on the last occasion four cartridges seek one. the holes in. This was partly expected by those who had charge of the operations, so that on the last occasion four cartridges, each containing 2 ozs. of dynamite, were put into the bottom of the holes, and then sand and dynamite alternately, so as to bring the dynamite up nearer to the top part of the holes. On this being done it was found to answer very well, but the disadvantage found was that 8-ft. holes took more time in cleaning out towards the lower end, so that if there were any strong bands of ironstone small pieces of the drills were left, and those from a hole 6 ft. deep and only  $1\frac{1}{2}$  in. in diameter took considerable time to get out. Another reason why the holes should not be too deep was because it was found that when dynamite was used as an explosive agent the ground was when dynamite was used as an explosive agent the ground was usually broken from 6 in. to 1 ft. deeper than the holes were bored, and this was about the same whether the holes were bored 5 ft., or and this was about the same whether the holes were bored 5 ft., or even 8 ft. deep. The quantity of dynamite used for the side holes varied a little, according to the description of the ground, but for the 6-ft. sumping holes, as a rule, 16 cartridges, each containing 2 ozs., were enough for either strong bind or rock. The side holes in rock exploded after the sump holes with from 9 to 13 cartridges, each being charged with 2 ozs. of dynamite. When the ground consisted of strong bind, and the sump holes were fired simultaneously, they took from 14 to 17 similar cartridges for each hole. One of the many advantages connected with simultaneous blasting was that considerably less damage was done to the brickwork and timbering near to the pit bottom than by the usual method. For firing simultaneous siderably less damage was done to the brickwork and timbering near to the pit bottom than by the usual method. For firing simultane-ously there was a cable, consisting of a strand of seven tinned copper wires, each '022 in. in diameter, insulated with india-rubber, which was again covered with tarred hemp. Two of the cables hung down the pit, a fuse was put into each hole when charged, with a detonator and two wires. The cables were connected to two wires forming a continuous line of wire from the surface down one cable to each hole, and back up the other cable to the surface again. When the men are all out of the pit the cables are connected to the machine

and the holes exploded.

In sinking at Houghton the strata gone through to the extent of In sinking at Houghton the strata gone through to the calcular of the process of the commenced after tubbing to ascertain what distance had been completed. Yet so successful was the system of blasting that in 42 weeks 376 yards within 6 in were sunk and bricked, which, conweeks 376 yards within 6 in. were sunk and bricked, which, considering the nature of the strata, was certainly very rapid. Some 25 yards below the tubbing the water came out at the rate of 280 gallons per hour, and 5 yards lower there was an increase to 500 an hour. After sinking to a depth of 440 yards, a water lo lge, consisting of a heading 60 yards in length, was put in. For winding there were a pair of semi portable engines of 35-horse power; but as the foundations rested upon what was formerly the bed of a river, there was considerable trouble, as the engine sank from time to time to a depth of 6 in. In dry sinking with good engines, from what was done at Houghton, there appears to be no doubt that by the system adopted fully 10 yards could have been sunk through similar strata in a week with about nine men in a shift; but even this might be exceeded were there a machine devised for boring the sump holes at one time, which would certainly not be a very this might be exceeded were there a machine devised for boring the sump holes at one time, which would certainly not be a very difficult matter. We should say the cost of sinking by simultaneous blasting contrasts most favourably with that by the ordinary mode, for in one week, in which nearly 22 yards were sunk, the cost per yard for wages of sinkers and banksmen, candle, and dynamite was only at the rate of 5*L* is. 10d. per yard, although the then rate of wages of sinkers would be about 15 per cent. higher per shift than at the present time. The result of the sinking through strata of a similar character to the Upper and Lower Cheviot rocks by means of simultaneous blasting, shows that the system is a most by means of simultaneous blasting, shows that the system is a most effective one as regards rapidity and economy, and can be carried out with the greatest safety, for during the operation at Houghton there were no accidents worth noticing, not a single life having been lost from the beginning to the end.

TREATING GOLD ORES .- The invention of Messrs Drouin and De Baxeres de Torres, of Madrid, has for its object the more economical recovery of gold, silver, copper, and cobalt from all minerals or ores containing same; and consists in reducing such ores to powder, and in the addition to such pulverised mineral or ore of an acidulated solution, either hot or cold, of marine salt, in order to obtain the chlorides of such metals. Also in the use of binoxide of manganese, with the object of facilitating the dissolution of the chlorides. The quantities of materials composing the solution will vary with the quantity and richess of the ores treated. The invention can be performed by crushing the ores in any convenient stamping machine, and then treating the resultant powder in a cask or casks with double sides and bottoms, covered with a cloth, which serves as a filter. The pulverised ore is placed in the inner and upper part of the cask, where it is held in suspension in the solution, and stirred therein by hand or machinery. It is sometimes convenient add more water to the solution, especially if the metal is mixed with tenacious ear his or matters.

CAST-IRON COLUMNS, AND EXTINCTION OF FIRE.—Mr. H. REDFERN, of Hanley, Stafford, proposes to lay a complete and preferably indepenent system of water-pipes in each and evey floor of a warehouse or other building to connect these water-pipes with each and every column in each separate floor or floors, and to fill the said columns with water in case of fire by means of a valve in the basement of the building, each floor having its separate valve, proposes to provide each of the said columns near its top or ca with a perforated collar, collars, jets or conical or plain holes, the number, position, and dimensions of these collars, jets, or conical or ain holes being regulated to suit the requirements of existing

buildings. In the case of conflagrations in any or the whole of the floors of a building thus provided, the columns may be kept perfectly cool by opening either the valve on the basement comminicating with the water system of one floor, or all the valves communicating with separate system, thereby filling all the columns with water and causing the water to issue from the collars, jets, or conical or plain holes in all directions to extinguish or assist in extinguishing the fire

#### ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY (LIMITED).

ITO.—Captain N. C. Morcom, Oct. 11: No. 1 Lode: We have begun to drive in this lode about 3 fms. below tunnel level, and just under the Thito entered the lode produces a little green ore of good quality.
1.18: The end driving on the course of the lode north is making fair progress; de is not very productive, still it yields sufficient ore to pay the expenses of green while it continues to do so we shall be led to hope that it will further the.

the lode is here to the continues to do so we shall be led to nope that it will further opponing. While it continues to do so we shall be led to nope that it will further improve.

Cot. 28: The ground is favourable for driving. The lode is not quite so productive as it has been. A cross head has disarranged it. Our hope is that by driving on the course of this lode we shall meet with ore ground of value. No doubt this is a better prospect than driving on the quartz lode, where the ground is hard and expensive. At all events, a fair trial should be given to this No. 1 lode, although it has not been held in the highest estimation in time past.

PROVIDENCIA.—Oct. 4: Nothing has been done in the big green ore stope above tunnel level, with the exception of spilling through the old works and stuff (which have fallen in), in order to regain the two passes; we hope to resume stoping next week.

tunnel level, with the exception of spilling through the old works and stuff (which have fallen in), in order to regain the two passes; we hope to resume stoping next week.

Oct. 11: We are getting on pretty well with spilling towards the buried passes; we have commenced again to break green ore from this stope. Next week wehope to be able to put on full force.

Oct. 13: The working of the big green ore stope above tunnel level is resumed with full force. Clearing to the buried passes has been effected. The lode still produces a fair quantity of ore, but a considerable falling off in value has been the result of the past seven weeks' working; as previously stated, but little dependence must be placed on the long existence of this stope, for reasons already giren—the nearness of the old workings.

Oct. 29: This stope is still productive of a fair quantity of green ore. As to its durability, the future alone will reveal. Both passes are again secured.

LA VIRGEN.—Oct. 4: In the stope above tunnel level the work is suspended until the rise which we are now putting up gives sufficient stuff to fill up the excavation made by stoping. The lode in the rise is very poor at present.

Oct. 11: The ground in the rise has been favourable; it is probable we shall begin stoping in the course of a week.

Oct. 18: The rise in the stope has given enough stuff to fill up the late excavations. Stoping will be at once resumed.

Oct. 29: The stoping of this lode above Tunnel level the past week has resulted very favourably. The lode has improved, and the ore appears to be of a good ley. What we have to complain of is the shortness of the bunch.

Cruz Verde.—Oct. 4: The stope in the back of the level, which is 15 fms, from surface, yields a fair quantity of good green ore. The end going north has some branches of the past of reverged one.

Oct. 11: The end and stope have nothing new to speak; still yielding a fair quantity of green ore.

Oct. 15: The lode driving north has some branches and spots of very good ore.

Cct. 11: The end and stope have nothing new to speak; still yielding a fair quantity of green ore.

Oct. 18: The lode driving north has some branches and spots of very good ore. The stopes are turning out well. The shaft is being cut down below the first lerel preparatory to sinking the same. If appearances are worth anything our prespects are very hopeful at this point.

Cct. 28: The end driving north contains a little more ore than formerly. The end started south is in very hard ground, and has but little ore at present.

Nov. 9: Telegram from Mr. J. H. Clemes—"Improvement in doelle (green) ore stopes."

Nov. 9: Telegram from Mr. J. H. Clemes—"Improvement in docine (green) ore stopes."

MINA GRANDE.—Oct. 4: The big black ore stope below tunnel level has fallen off considerably in value. The lode is about 15 ft. wide, composed of quartz and felspathic porphyry, with good lumps and veins of ore. The winze started at the 12 is holed to the 15. It has opened some good stoping ground. The 15 driving north has become much poorer than when last reported, with at present 5 tons per fathom. The ore appears to be making east, but how far it will continue our drivings will reveal. As far as seen this shoot of ore is 40 ft, long. The width we shall know when we stope it out. We have just started an end in the 15 south. It is producing 3 tons of ore per fathom—that is, for 6 ft, on the course of the lofs and the width of the level. The lode is 6 ft, wide, but the ore-producing part of the lode is only 2 ft, wide. According to the level above we do not expect the tore to extend far south; this, however, we shall soon prove, as we have four good men driving the end.

the lode is only 2ft. wide. According to the level above we do not expect the ore to extend far south; this, however, we shall soon prove, as we have four good men driving the end.

Oct. 11: The big black ore stope below tunnel level is much the same as when last reported. There is every appearance of the ore giving out as depth is attained. The end started in this north end of the stope is also poor. We expect, however, that it will soon improve. The end driving south in the licentains a little ore, but not as much as when last reported. Since holing the winze from the 12 to the 15 the men have been taking down the west part of the lode. It is composed of lumps of lead, blende, and copper ores, together with quartz and limestone. The end north is suspended until the lode is brought down, as we wish to know in which part it is best to drive.

October 13: The big black ore stope below tunnel level has been falling off in adjusted the stope north, still we have a hope as the end we are driving north through this ground advances more ore may be met with. The lode remaining in the back of the stope north about 2 tons of black ore per fathom. The stopes in the back of the stope contains a great deal of ore, but unfortunately the height is not much between this and tunnel level. In the 15 driving south there is a sight improvement, worth about 2 tons of black ore per fathom. The stopes in the back of the level south of the incline winze contain some very fine patches of ore, but it is fall less productive than we anticipated, having based our calculations for a large body of ore opened on the very productive nature of the end driven; this is another proof of the very irregular and uncertain character of the mineral producing part of the lode. We shall soon be able to commence a stope in the bottom of the 15; this we can do, and stope the back of the level at the same time; it is to be hoped the bunch of ore in the bottom will be more certain and compact than it has been in the back.

October 28: The end driving north

In the back.

October 28: The end driving north in the big stope below the tunnel level to wards the old winze yields a little ore, but not enough to pay expenses; we expect, however, that it will soon improve. The end driving south in the 15 is worth 1½ ton of ore per fathom. The stopes in the back of the same level have some very fine stones of ore, still it is not near so productive as we expected it would have been.

ly ton of ore per fathom. The stopes in the back of the same level have some very fine stones of ore, still it is not near so productive as we expected it would have been.

J. H. Clemes, Oct. 4: The changes that have occurred since last advices are rather for the worse. A rise that has been pushed above the Virgen stope shows a very poor front; the ore at the level at the top of the rise may, however, is north of it. In the main Providencia stope we have extracted very little ore during the last ten days, so that it remains without change. In the Mina Grasde the winze in the 12 has been communicated to the 15, so ore will now be broken at that place. Unfortunately this ore deposit is as uncertain in character as the main stope about the 12, the end after a week's working not presenting as favorable an appearance as previously. The ore makes apparently in bunches. We are separating "shipping ores" from this point; the one a sort of petanque, the other a leady ore. The assays of these parcels will serve to show whether the improved ley continues. The main Mina Grande stope is now very poor; of the ores going to furnace two-thirds are now derived from the Mina Grande burrow, and one-third from underground. We shall now, however, be ready to increase the black ore output from the 15, as was said above.

October 11: Now that we have the opportunity of carrying on explorations out of a special fund several points of great interest and importance will be explored one after another. As soon as Clemes' cross cut was stopped we began to open up a roadway in San José Mine (part of Mina Grande) for the purpose of examining the cross cut through Las Guijas lode to examine also the bottom of the San José Mine (part of Mina Grande) for the purpose of examining the cross cut through Las Guijas lode to examine also the bottom of the San José Mine (part of Mina Grande) for the purpose of examining the cross cut through Las Guijas lode to examine also the bottom of the San José Mine, and to communicate its bottom drift with the M

having been worked in hope of an improvement. Our financial position justice does not permit of working non-paying places. We shall soon be able to give an idea of the value of the attle in Mina Grande old workings, and every day as shall know more of the value of the dumps.

October 18: Assays: I shall next week wait on you with a list of these sinclind advice. They will afford information about another old dump. I am becoming convinced that attle both in underground excavations and on dumps of a goalige as soon as present ore accumulations are reduced; the great advantage of his attle is that there are no mining costs to pay on it. You shall be kept on the as soon as present of all assays on the large scale of this material.

Oct. 28: During the present month the north drift in the Primera Veta (ist light Tirito) has been advanced some 18 ft. on the lode. To give a decided opinion of the merits of this drift we must take certain samples, the result of which wills forwarded per next letter. We have a favourable opinion of the ground dries through; the extreme end at this moment is not looking quite so well as its peared a few days ago. A marked improvement has taken place in the ligas stope, large stones of good green ore appearing in the back. The worst feature in this ore body is its shortness. The increased yield from this place will farget ably affect our builtion produce. In the Mina Grande from the north end of the main stope a level is being driven north to communicate with the large possible per foot, \$12. The 15 is a place about which one must write cautionally it his pair is doing more than paying its expenses. The level has been extended supposed being capricious. Censidering, however, that the ore is of improved ley this pair is doing more than paying its expenses. The level has been extended some of the same of the same and the same and the second-class sent to buddled in the proportion of about one to four. The form is doing more than paying its expenses. The level has been extended some of the S

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#### THE WEEK.

THE WEEK.

SATURDAY, DEC. 7.—The markets opened flat, and closed without recovery, midst because of the difficulties of a bank to which reference was made yester-by. The concern was named to day as the West of England and South Wales plotted Bank, having a nominal capital of 1,000,0001, in 20t. shares, 15t. paid, sat being established in over 40 different towns in Wales and the West of England. It is an unlimited concern. The greater portion of the lock ups are undersold to date from Fothergill's failure in 1875, and must be of very uncertainned to the from Fothergill's failure in 1875, and must be of very uncertainned. It is expected the circular announcing the stoppage will be issued on Monday. Why this bad business should affect foreign stocks is not very clear, but Unified dropped to 50%, and Preference to 70%.

MONDAY.—At first it was stated that the shareholders of the West of England bak would only lose their paid-up capital, and that business would soon be resulted to the control of the state of the state of the theorem of the state of the theorem of the state of the theorem of the state of the sta

seling in Dover, A, and Brighton, A. Both stocks are now down from 2 to per cent.

The party — Brighton, A, dropped from 133½ to 131½; within a fortnight the history and the property of the

cest.

ENDALY..-Last account Unified were continued at 52½; this time it was
the Preference have similarly fallen from 71½ to 68½. The greatest drop
sen is Brighton, A, and here very large differences will have to be paid tow. The fall has been 7, from 138½ to 131½. Dover, A, have receded from
12½, and Caledonian from 98½ to 68½. There was a rise of from 1 to 2
leading banks. In railways the chief feature was a heavy decline in ChatProfession.

ito 12134, and Caledonian from weig to roy, Laure and Andrewski and Caledonian from the chief feature was a heavy decline in Chattan Preference.

Rada (Opening).—There is a rise of \$\foating\$ in Brighton, A (13234, 13234), and one flow in Dover, A (12234 to 12234), but otherwise the markets are inclined to dular. Expiring unified can still be had at 494, and the Preference at 694, lake shares maintained yesterday's rise, City being 13 to 14; Union, 34 to 36, lake lares maintained yesterday's rise, City being 13 to 14; Union, 34 to 36, lake lares maintained yesterday's rise, City being 13 to 14; Union, 34 to 36, lake lares maintained yesterday's rise, City being 13 to 14; Union, 34 to 36, lake lares of the constant of the con

				LE	AD	0	RE	8	3.	
	_ 2			Tons	. 1	Price	e per	r t	on.	Parchasers.
ec. 9-	-Wye T	Valley	********	40		£ 9	1	0		Nevill, Druce, and Co.
12-	-Van	*******	********	200	********	10	1	6	******	Walker, Parker, and Co.
-	<ul><li>ditto</li></ul>	*******	*******	50	*******	. 10	1	- 6		Adam Evton.
	- ditto	*******		50		. 10	2	0	*****	Nevill, Druce, and Co.
	- ditto	*******	********	50	*******	10	1			ditto
	- ditto	*******	********	50	********	10	3	6		Quirk, Barton, and Co.
	- ditto	*******	********	100	*******	10	8			
-	-Talarg									
	Mae	syrew	ddu	70	*******	9	15			Walker, Parker, & Co.
	Coet	la Liy	8	30	******	10	15	6		ditto
-	-North	Hend	ге	150	********	9	12	6		ditto
-	- do	(round	d ore) .	25		11	0	0		Sheldon Bush and Co
	-Knvd	Alvn		25		- 9	9	0		Walker Parker and Co.
13-	-Bouth	Darre	n	40	*******	14	7	6	******	Sheldon, Bush, and Co.
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ate. c, 11—Tala	Mines.	Tons. 50	Price	9 pe	r ton.	Purchasers,
				- 1	D	
- ditt	0	50	9	5	0	_
						Villiers Spelter Co. Kenrick and Son.
- diu	io	871/4	. 2	11	0	Menrick and Son.

# COPPER ORES.

Sampled Nov. 27	, and	1 80	old at Swansea, Dec. 10.	
Mines. Tons. Produce. P	rice.		Mines. Tons. Produce. Price.	-
hion 94 10½ 25	6	в	Virne' erg 44 2314 £12 9	0
	3	6	ditto 80 13 7 12	6
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ditto 78 9	12	0	ditto 8 10% 5 17	0
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	0	0	Tan-y-Bwlch 25 121/2 7 0	0
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		0	ditto 2 3614 18 0	0
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			Copper Precipt 4 123 0	0
COMPANIES BY WHO	MT	H	E ORES WERE PURCHASED.	
Names.	T. T.	44.5	CHES WERE PURCHASED.	
Copper Minante			Tons. Amount	

001				-	
COMPANIES BY WHOM THE ORES	WE	RE PUI	CHAS	ED.	
Copper Minoral Co.	Tons,		Amo	oun	
Copper Miners' Company	343	*******	£ 1,750	7	0
evil Dans	23	*******	362	5	0
VIII and Die	11	********	306	9	0
and Put	852	********	4.257	8	
Marine Larmh	270	********	1,209	0	6
		*******	106	0	0
Andore Copper Co	237	********	1.551	0	0
**************************	175	********	1,363	2	0
	-		-,		_
SALE OF DOTAGE	1916		£10 908	11	

## TOTALS AND AVERAGES.

### Produce. Price. Per unit. Standard.
### 1016 ..... 1056 ..... £5 13 10 ..... 10s, 7d...... £77 11 0

the Master of the Rolls has appointed Mr. B. P. Daniels (Godles, and Co.) provisional official liquidator of the Ruthwayte Barytes Co.

In the Court of the Vice-Warden of the Stannaries.

IN the MATTER of the COMPANIES ACTS, 1862 and 1867, and of the TEIGN VALLEY LEAD AND BARYTES MINING COMPANY (LIMITED).—By an Order, made by the Vice-Warden of the Stannaries, in the nove Matter, dated the 11th day of December, 1878, on the petition of Frederick Whinney, of Old Jewry, in the City of London, Public Accountant, and Thomas Andrew, of the City of Exeter, Public Accountant, claiming to be creditors of the above named company, it WAS ORDERED that the said Teign Valley Lead and Barytes Mining Company (Limited) SHOULD BE WOUND UP by the Court under the provisions of the Companies Act, 1862.

ROBERT DOBELL, Jux., Solicitor, Truro.

(Agent for Messrs, Halse, Trustram, and Co., 61, Cheapside, London, E.C., Solicitors for the above-named Frederick Whinney and Thomas Andrew.)

Dated Truro, this 12th December, 1878.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Devon.

IN the MATTER of the COMPANIES ACTS, 1862 and 1867, and of the TEIGN VALLEY LEAD AND BARYTES MINING COMPANY (LIMITED).—The Vice-Warden has, by an Order made in the above Matter, bearing date the 11th day of December instant, APPOINTED JOHN HENRY HAMLEY, of Trure, within the said Stannaries, an Officer of the said Court, to be absolutely the OFFICIAL LIQUIDATOR of the above-named company.

Dated Registrar's Office, Trure, this 12th day of December, 1878.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Davon.

IN the MATTER of the COMPANIES ACTS, 1862 and 1867, and of the TEIGN VALLEY LEAD AND BARYTES MINING COMPANY (LIMITED).— Notice is hereby given, that ALL CREDITORS of the abovenamed company are required, on or before the 24th day of December instant, to SEND IN their NAMES and ADDRESSES, and the AMOUNTS and PARTICULARS of their CLAIMS, to JOHN HENRY HAMLEY, the Official Liquidator of the said company, at the Stannaries Court Office, in Truro, within the said Stannaries.

Dated Registrar's Office, Truro, this 12th day of December, 1878.

BY ORDER OF THE EXECUTORS OF THE LATE JOSEPH SMETHURST, DECHASED.

SMETHURST, DECMASED.

MR. WILLIAM MOPHERSON WILL SELL, BY PUBLIC AUCTION, at the Mitre Hotel, in the City of Manchester, on Tuesday, the 17th day of December, 1878, at 81x for Seven o'clock in the evening:—
Lot 1.—THIRTEEN fully paid-up SHARES of £10 each in the SWANSEA TRAMWAYS AND IMPROVEMENTS COMPANY (Limited).
Lot 2.—FOUR fully paid-up SHARES of £20 each in the ANGLO-MALTEBE HYDRAULIC DOCK COMPANY (Limited).
Lot 3.—SEVENTEEN fully paid-up SHARES of £10 each in the SOLWAY JUNCTION RAILWAY COMPANY (Limited).
Lot 4.—THIRTEEN fully paid up SHARES of £20 each in the BIRCH GROVE COLLIERY COMPANY (Limited).
Lot 5.—TWENTY-TWO fully paid-up SHARES of £10 each, in the MYND-DYGARREG AND KIDWELLY RAILWAY AND LIME COMPANY (Limited).

DYGARREG AND KIDWELLY RAILWAY AND LIME COMPANY (Limited).

Lot 6.—THIRTY SHARES of £10 each in the WARTON LAND COMPANY (Limited)—six fully paid-up, and twenty-four £7 paid up.

Lot 7.—THREE fully paid-up, 8HARES of £100 each in the NORTON IRON COMPANY (Limited), and THREE 2 per cent. PREFERENCE SHARES of £100 each in the same company.

Lot 8.—SIXTY-FIVE fully paid-up SHARES of £10 each in the ANGLO-INDIAN COTTON COMPANY (Limited).

Lot 9.—THIRTEEN fully paid-up SHARES of £20 each in JOHN ELCE AND COMPANY (Limited).

Lot 10.—SEVENTY-SIX fully paid-up SHARES of £5 each in the GOOD HOPE MILL COTTON SPINNING COMPANY (Limited).

Lot 11.—THREE GWENDRASETH VALLEYS RAILWAY COMPANY'S BONDS of £1000 each, with 938 fully paid up SHARES of £10 each in the same company added.

Further particulars may be had on application to the Auctioneer, 55, Market-place, Manchester; to GRORGE WILLIAMSON, Accountant, No. 13, Norfolk street, Manchester; and to SLATER and TURNBULL, Solicitors, 22, Cooper-street, Manchester.

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ing order maintained by contract.

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home prices. As to care taken in reporting, reference is made to the Mining Journal
Supplement, April 1, 1876, containing report on property of the Maxwell Land
Grant and Railway Company; as to technical standing, to the prominent men of
the trade—compare Mining Journal of Aug, 30 and Nov. 31, 1872, and New York
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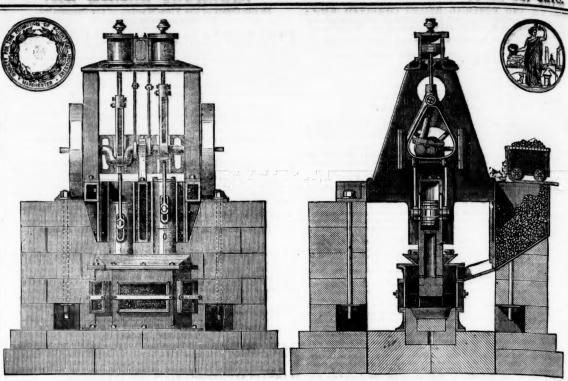
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All objectionable features of "wear and tear" common to the original and existing Pneumatic Stamps (driven by belts) are removed in this patent, and leather glands and stuffing boxes entirely dispensed with, the pneumatic piston being reciprocated into the compressing chambers by direct-action from without. These double machines are guaranteed to be of the capacity of 36 ordinary heads of cam and lifter stamps, and engineers will at once see that, inasmuch as the power is directly applied to its work (without the medium of belts and other gearing), the minimum consumption of coal (all other conditions being equal) must be

The COST OF THESE MACHINES (including boiler) is about ONE-THIRD OF THE ORIGINAL CAM AND LIFTER STAMPS, to do the same work.

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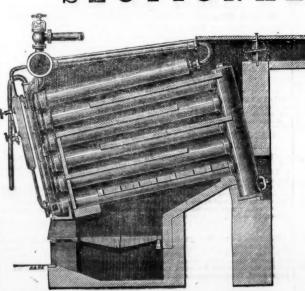
APPLICATION.

CORNWALL POLYTRECHNIC SOCIETY, 1878. T. B. JORDAN, SON, & MEIHE 63, QUEEN VICTORIA STREET, LONDON, E.C. 21 AND 22, LINDENSTRASSE, BERLIN.

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THE MINING SHARE ET	51.
BRITISH DIVIDEND MINES.  Shares Mass. Paid. Last with City, Nr. Total days.	
2000 Beyn Alyn, *1, Denbigh 10 00 0 70 0	7 0Jan. 1 2 0Oct. 1
1000 Carn Brea. c, t, 11logant 5	0 0Feb. 1: 2 0Aug. 1
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5000 East Black Oraig, * l., Scotland 5 0 0 0 10 0 0 10 0 0 300 East Darren, l, Cardiganshire 32 0 0 235 10 0 1	10 0 Feb. 18
6400 East Pool, f, s, Illogan	0 6Aug 18
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5400 Green Huren, 1, Durnam 0 0 0 1 18 0 0	3 0Mar. 18 0 10.Aug. 18 1 0Oct. 18
80000 Holmbush, a, c, s-l, Callington 1 0 0 0 4 6 0	0 6. Sept. 18
400 Lisburne, I, Cardiganshire 18 16 0 371/2 35 371/2 587 10 0 1	3 0. Mar. 18
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30000 Panty Mwyn, 1, Mold (8794 iss.) 2 0 0 4½ 3½ 3½ 0 3 0 0	5 0 . June 187 0 . Aug 187 0 0 June 187
5000 Penhalls, t, St. Agnes	0July 187
18000 Prince Patrick. ** s-l, Holywell 1 0 0 1½ 1 ½ 0 14 0 0 1 10000 Red Rock, ** l, Cardigan 2 0 0 2½ 1½ 2½ 0 4 0 0 2	8Nov. 187 3Jan. 187 0Jan, 187
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0000 Wheal Prussia, t, Redruth 0 50 716 66% 0 15 0 0 5	0 Aug. 1872
	6Oct. 1876
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15000 Chicago, s, Utah*	Aug. 18;8
23500 Eberhardt & Aurora & Nevede*t 10 00	May 1877
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68000 Kapunda Mining Co. Australiat	B. pt. 1878
20000 Last Chance, s,* Utah	June 1878
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	ully pd. 50
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FOREIGN	AND	MISCELLANEOUS STOCKS, BONDS, LOANS. AND TRUSTS.	
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THIS MINING JOURNAL.	
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" Limited Liability Companies; † quoted en the Stock Exchange;   have paid dividends.	address

# b, blende. a., coal; c, copper; g, gold; l, lead; s, aliver; sl, slate. s-l, silver-lead; l, tin; s, zinc. Limited Liability Companies; t quoted on the Stock Exchange; I have paid dividends.

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10 Benha	r Coal Co. [L.]	8 [L.]	3 0 0 54 10 0 0 54 50 0 0
10 Bilson	& Crump Meado	Coll Co II.	3 0 0 34 10 0 0 54 50 0 0 18 50
60 Blaen	Cwmbach Coal Co	. [L.]	10 0 0 2 20 4 0 0 2 3
50 Bowlin	w, Vanghan, and	Co. [L.]A	50 0 0 2
50 Britan	nia Ironworks [L.]	.)	50 0 0 2 4 50 0 0 2
100 Brown	nry Co. [L.]	on [L.]	0 0 0 5 4 5 5 5 5 5 5 5 6 0 0 0 0 18 20 5 5 6 0 0 0 0 0 18 20 5 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
3 Cakem	ore, Causeway Gr	cen, L. Holt	3 0 0 37 81
20 Cannoc	ore, Causeway Green and Co. [L.]	Coal II. 1	3 0 0 37 8) 0 0 0 13 13 0 0 0 9 8) 8 10 0 4 1
10 Cardiff	& Swansea St. Co	al Co. [L.]. Co. [L.].	8 10 0 X 1
10 Central	Swedish Iron an	d Steel [L.]. 1	0 00"
60 Charito	n Iron Co. [L.] .	5	0 00 4 -22
10 Chillin	ton Iron Co. [L.].	10	5 0 0 40 10
10 Consett	Iron Co. [L.]		7 10 0 3
50 Cooke, 20 Darling	William, and Co.	[L.] 40	0 0 0 49 4
60 Davy B	rothers [L.]		100
b Diamon	ton Iron Co. [L.] Iron Co. [L.] Spanish Ore [L.] William, and Co. ton Iron Co. [L.] rothers [L.] d Fuel Co. [L.]	5	0 0 1 2
100 Fox, Sar	nuel, and Co. [L.]	20	0 0 16 14 0 0 25 30
20 Great W	Mining Ass. [L.] estern Coal Co. []	£1 returned) 9	0 0 2% 3%
2 Gwyngv	Gilken and Co	(L.) 2	0 0 3%
80 Knowles	, Andrew, and Bo	ns [L.] 17	0 0 11 10
b Littleder	n Woodside Coll.	Co. [L.] 8	0 0 8 5
10 Lydney	d Fuel Co. [L.] fuel, and Co. [L.] fuel, and Co. [L.] Mining Ass. [L.] festern Con. [Co. [Co. [Co. [Co. [Co. [Co. [Co. [Co	Co. [L.] 80 Ore [L.] 8	0 0 5 5 0 11
10 Marbella	Iron Ore Co. [L., teel and Iron Co. [L.] good Colliery Co. d Iron and Coal (Iron Ore [L.]	] 10	5 0 11 10 0 0 7% 7
10 Midland	Iron Co. [L.]	[L.] 8	0 0
6 Mold Ar	goed Colliery Co.	[L.] 8 0. [L.] 10	
4 Mwyndy	Iron Ore [L.]	3	15 0 - 8% 4
3 Nerbudde	Coal and Iron [1	. & Red.] 2	0 0 18 20
20 New Shar 10 Newport	Abercarn Coal Co.	[L.] 10	0.0 1 18 4
10 Northmp	d Iron and Coal ( Iron Ore [L.] lio and Blaina (8) a Coal and Iron [I riston Collicios [I Abercare Coal Co to. Coal, Iron & W d Iron Co. [L.]	agon [L.] 8	0 0
I Norton G	reen Cool Co II.	1	0 0 % 7% di
Palmer's	Shipbuilding and Iron Co. [L.]  tt and Bolt Co. [L  aft and Axletree [  al and Iron [L.]  essemer Co. [L.]  Iron Co. [L.]  Park Colliery Co.	Iron [L.] 25	0 0 14 13 di
20 Patent Nu	at and Bolt Co. [L	L.] 10	
20 Patent Shi 20 Pelsall Con 50 Phoenix B	al and Iron [1]	17 1	0 0 1 % die
50 Rhymney	Iron Co. [L.]		0 0 181/
10 Sandwell I 10 Ditto	New	[L.] 10 (	0 13 14
00 Sheenhride	n Co. [L.]	T. 1 58	0 0 85 88
50 Silkstone d 20 Skerne Iro 50 Somorrostr 25 South Wald 50 Staveley Ir 50 Ditto	ge Iron and Coal [ Dodworth Cl. &	Iron[L.] 33 (	0 0 31 30 di 0 0 28 27 dia 0 0 16 16 dia
50 Somorrostr	o Iron Co. [L.]	50 0	
00 Staveley Ir	to Dodworth Cl. & conworks [L.]	[L.] 60 0	0 61/4 71/4
10 Swansea V	ditto I	Tew 10 0	0 1 1½ pm
O Thames Ire O Tredegar In Ditto	on Company	L.] 20 0	0
Ditto	B. shares .		0 11 10 dia 0 18 20
0 Vancouver	Coal [L.]	6 0	0 5 3 die
0 Vickers, So 0 Welsh Iron 5 W. Cumber	ns, & Co. [L.] works Co. [L.]	100 0	
5 W. Cumber 0 West Mosts	and I. and Steel	[L.] 20 0	0 19 11½ dis
West Mosty West Swan Whitehaver Wigan and	lea Colliery Co. [1	.] 8 0	0
Wigan and	Mining Co. [L.] Coal [L.] ns, & Co. [L.] ns, & Co. [L.] land I. and Steel yn Coal [L.] (12p. sea Colliery Co. [I I ron Co. [L.] Whiston Coal Co. and Iron Co. [L.]	[L.] 70 0	0
Wigan Coal	and Iron Co. [L.	7	0
	WACON CO	MOANTE	
Birminghan	WAGON CO n Wagon Co. [L.]	MPANIES.	0 1814
Ditto 2nd	feering Cor [Hij	4 0	0 1514

10	Birmingham Wagon Co. [L.]	10	0	0	151/		
10	Ditto, 2nd issue			0	134		9
10	Ditto, pref., 6 per cent,	10	0	0	1112	113	g pr
20	British Wagon Co. [L.]	10	0	0	1 46		i po
10	Gloucester [L.]	10	0	0	634	75	
10	Ditto, 5th issue	Ð	U	U.,,	14	· i	ď
	Met. Rail. Car. and Wagon Co. [L.]			0	136	2	pi
. 5				0	34	3	f pa
10	Midland	10		0			pr
	North Central Wagon Co	20		0		211/	
9	Rail. Car. [L.] (Oldbury)	5		0		36	di di
5	Ditto, pref., 6 per cent	5		0		34	di
20	Sheffield Wagon Co. [L.]	15		0		3	pm
80	Yorkshire Wagon Co. [L.]	10	0	0	814	6	pm

# TELEGRAPH COMPANIES.

'8t."	"Anglo-American	100	0	0.	58%	58%
10	Brazilian Submarine	10	0		614	
20	Direct United States Cable	20		0		
10	Eastern	10			714	
10	East. Exten., Australia and China	10			674	
10	Great Northern	10	0	0	734	8
25	Indo-European	25	0	0	19%	23%
10	Mediterranean Extension	10	0	0	214	3
8	Reuters	8	0	0	10	11
Btk.	Submarine	100	0	02	117	223
	West India and Panama					234
30	Western and Brazilian	20	0	0	214	234
1000	Western Union, 7 percent. Mort. Bon	de \$1	00	0 1	114	118

# MISCELLANEOUS.

ı	MISCELLANEOUS,
	5:k. Atlantic and Great Western Leased
ı	Lines, Rental Trust 100 0 0 18 42
	25 Au-tralian Agricultural 21 10 0 78 80
	25 Austral. Mort. Land and Finance [L.] 8 0 0 4% 5
	10 Avonside Engine [L.] 7 0 0 7 5
	8tk. Baltimore and Ohio, 6 per cent 100 0 0 165 107
	10 Brighton Aquarium [L.] 10 0 0 6% 19
	5tk, Cent. of New Jersey Con. Mort 100 0 0 70 75
	5tk. Cent. Pacific of Calif., 1st Mort. 6 p.e. 100 0 01101/2 1111/2
	25 City of London Real Property [L.] 19 0 0 11/4 24
	6 Diamond Rock Boring 4 10 0 3% 3%
	15 English and Foreign Credit 8 0 0
	16 Fore Street Warehouse [L.] 14 0 0 9 10
	15 Foster, Porter, and Co. [L.]
	5 Gen. Phos. & Chem. Works Co. [L.] 5 0 0
	1 Greenhill [L.] 1 0 0
	5 Kit Hill Tunnel [L.] 1 0 0
	17 Hudson's Bay Company 17 0 0 10% 11
	10 Huntington Copper and Sul. Co 9 0 0
4	3tk. Illinois Central, \$100 shares 100 0 0 78 80
ì	Stk. Illinois & St. Louis Bridge, 1st Mort. 100 0 0 75 18
1	stk. Ditto, 2nd Mort., 7 per cent 100 0 0 33 38
i	th Illinois Cent. Sinking Fund. 5 p. cent. 100 0 0 99 101
	itk. Ditto, 6 per cent
٩	71/ Imperial Credit [L.] 7 10 0 7% 19
	- Ditto, Surplus Certificate 0% 0%
F	th Lehigh Val. Con. Mort., A. 6, p. cent. 100 0 0100 103
•	10 Milner's Safe [L.] 10 0 0 3%
	25 National Discount [L.] 5 0 0 8% Va
1	net W Cont Rail Con Mort. 6 per cent. 10 0 0 84
	10 Pawson and Co. [L.]
	50 Peninsular and Oriental Steam 50 0 0 35
ą	LE. Pennsyl, Gen. More. o p. cens., 1000, 100 o
R	tk. Ditto. Con. Sink. Fund, 6 p. et., 1905 100 0 0 19
à	tk. Scottish Aust. Investment Company. 100 0 0175
ί	tk. Ditto, 6 per cent. Preference 100 0 0125
•	10 Silber Light (ord. sh.) 10 0 0
	20 Suez Canal shares 20 0 0 20
	12 Telegraph Construc. & Mainte. L. J., 13 0
	Ditto, Second Bonns Three per Cents & O C 28 911
	to Tharsis Suirhar and Copper Co 10 0 0 2078
¢	Union Pacific Land Grant, 1st Mort. 100 0 0101
i	Union Pacific Railway, 1st Mort 100 0 0101
	s West of England Compressed Peat 5 0 0
	9 0 0

London: Printed by Richard Middletor, and published W HRNEY ENGLISH (the proprietors), at their office, 25, First BTRKET, E.O., where all communications are requested to M addressed, - December 14, 1878.